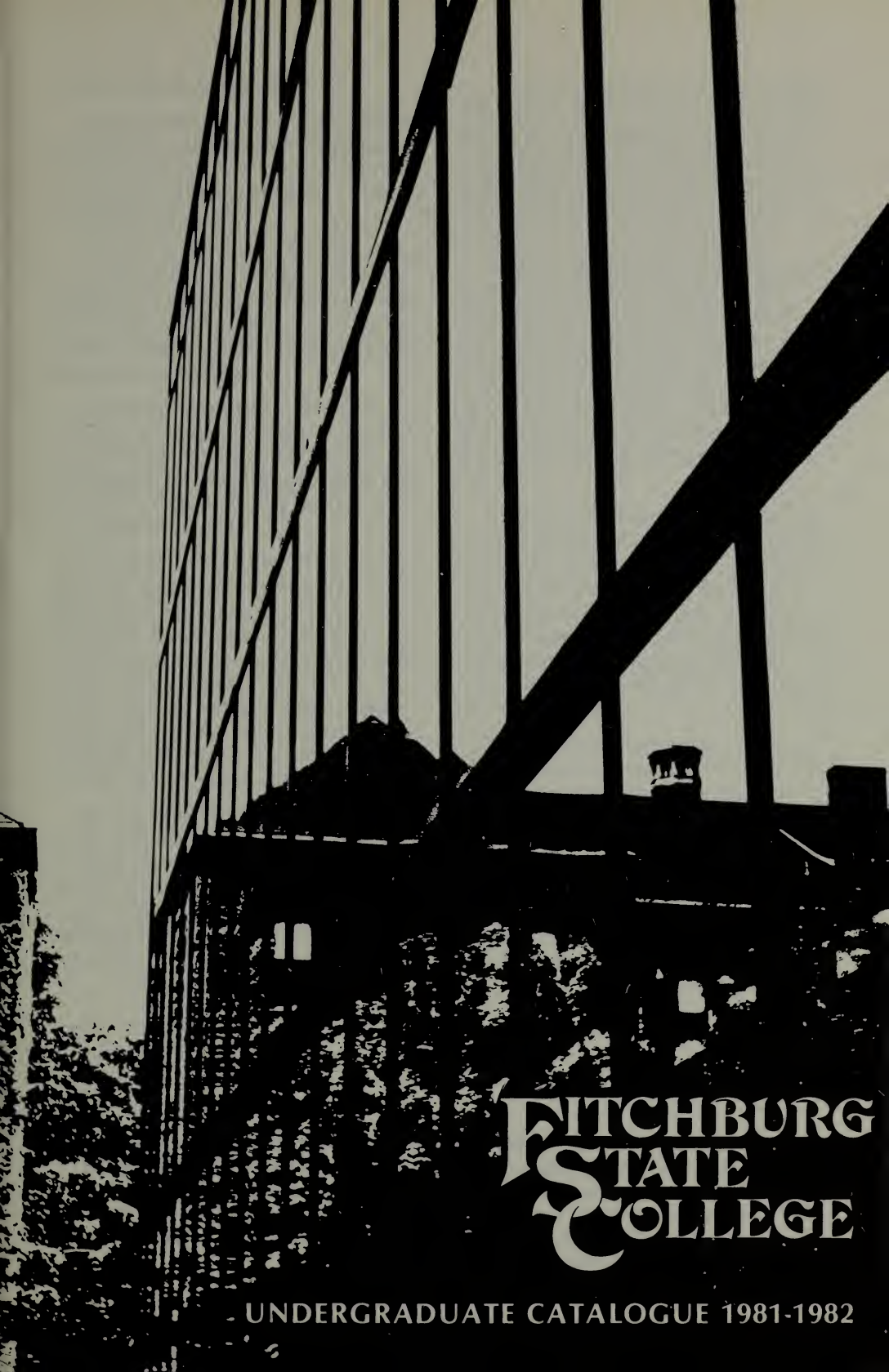
FITCHBURG STATE COLLEGE

UNDERGRADUATE CATALOGUE 1981-1982



FITCHBURG STATE COLLEGE

UNDERGRADUATE CATALOGUE 1981-1982

It is the policy and commitment of Fitchburg State College not to discriminate on the basis of race, sex, age, color, national origin, religion or handicap in its educational programs, activities, admissions, or employment policies, and to actively comply with Title IX of the 1972 Education Amendments, Executive Order 11246 as amended, Section 504 of the Rehabilitation Act of 1973, Titles VII and VII of the Public Health Service Act and all other pertinent State and Federal regulations.

To the College Community,

Daniel Webster, officiating at the laying of the cornerstone for the Bunker Hill Monument, said "human thought is the process by which human ends are ultimately answered."

How typically wise of Webster, who in his day was the political soul of New England, to note the paramount power of thought on an occasion marking the brute strength of powder and shell and farmers with bayonets.

Webster's wisdom is clear to the Fitchburg State Community. It is the adamant strength of ideas, like the outcropping hills of Montachusett, that endure in the weathering process of serving human ends.

It is clear because here at Fitchburg State we educate the nurses and teachers, the scientists and businessmen, the photographers, journalists, lawyers, media specialists and the technicians of computers and poetry: the women and the men who, equipped with the power of human thought, achieve for our society the human ends it values so highly.

And, having experienced this process, our vision, like Webster's is not clouded by the momentary occasions of life. We are clear about our purpose and we have developed the personal abilities and structural processes for attaining it.

We have developed a rich academic life. Nearly three-quarters of our faculty hold advanced degrees and all pursue an active intellectual life that includes publishing, lecturing and research. Our library, laboratories, galleries, and auditoriums are of the finest quality.

And, our student life is rich. We provide new and varied residence quarters, health and counseling services, job placement, financial assistance programs, popular films and entertainment and a diversified athletic program. Most importantly, there is the easy friendliness between students and faculty which is the richest quality of all.

It is this combination of an exhilarating academic and social life that builds the broad human being who can face the narrow challenges of life's varied roles. Our graduates will be parents and workers, owners and builders, citizens and statesmen: and, they will serve these roles well because we have served ours well.

We are proud that we value human thought and human ends. We hope that those who join us will leave as lucid about their own values and as clear about the process for living by them as we are. We have the experience to know this happens here and the acquired vigilance of learned men and women to assure that it continues to do so. Welcome to Fitchburg State.

Vincent J. Mara, Ph.D.
President

BOARD OF TRUSTEES

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Herbert E. Dunnington, *Chairman*	3-1-86
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FITCHBURG STATE COLLEGE CALENDAR

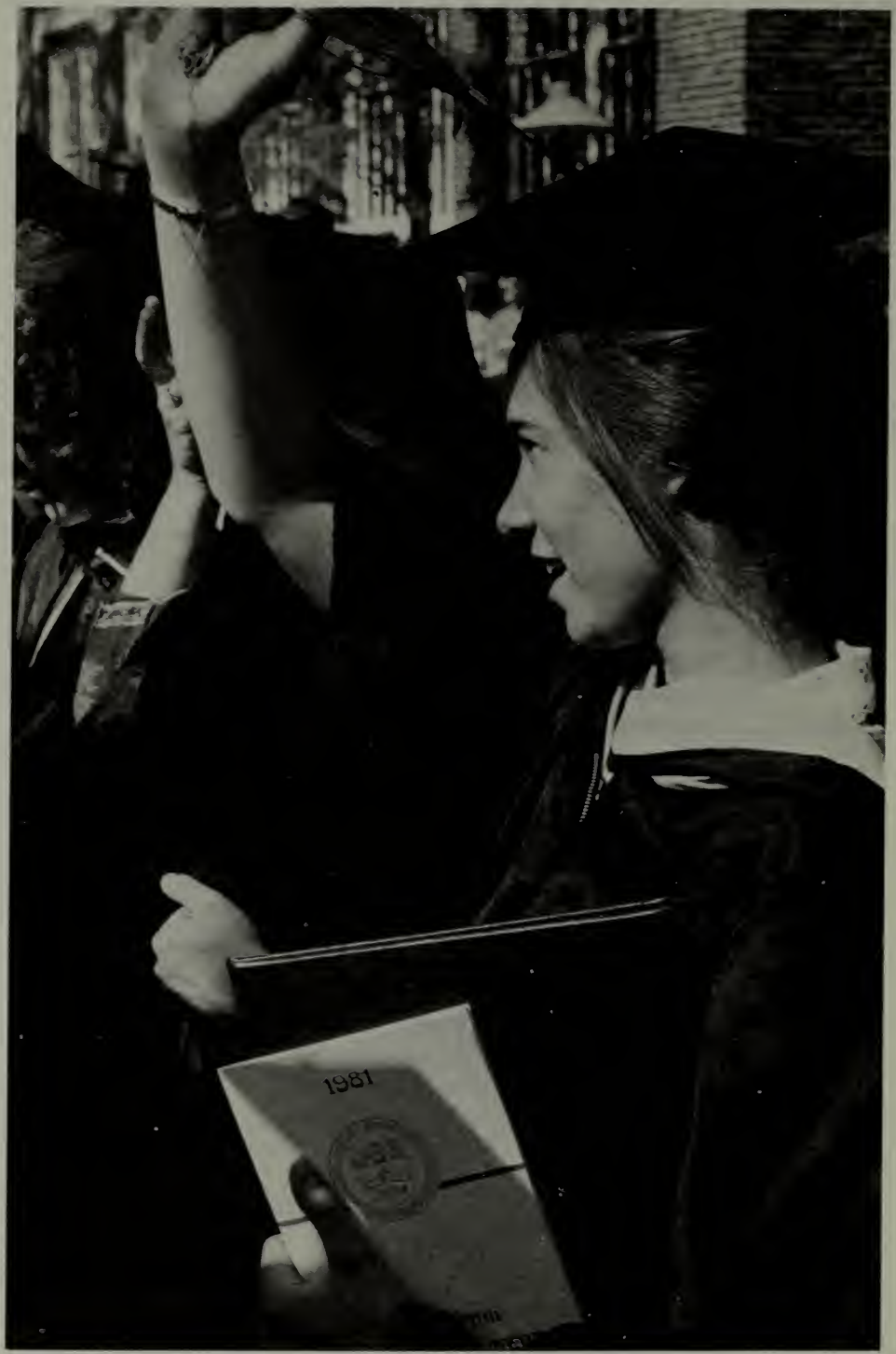
Academic Calendar 1981-1982

Fall, 1981

September 7	Monday	Residence Hall open for all new students 9:00 a.m.
8	Tuesday	College opens including residence halls for returning students
		First Student Teaching station begins
9	Wednesday	Classes begin 8:30 a.m.
23	Wednesday	Final Day for Adding/Dropping courses
23	Wednesday	Fall Academic Convocation—classes suspended
October 7	Wednesday	Final day for making up *Incomplete* grades from previous semester.
8	Thursday	U.S. & Mass. Constitution Examinations
12	Monday	Columbus Day—No classes
30	Friday	First Student Teaching station ends
November 2	Monday	Second Student Teaching station begins
4	Wednesday	Final day for withdrawal from classes without penalty (8 wks)
11	Wednesday	Veterans Day—No classes
12	Thursday	U.S. & Mass. Constitution Examinations
25	Wednesday	Thanksgiving recess begins 3:30 p.m.
		Residence Halls close 5:00 p.m.
29	Sunday	Thanksgiving recess ends; Residence Halls re-open 3:00 p.m.
December 11	Friday	Last day of Fall Semester classes
12		Reading & Review Day
14-23		Final Semester Examinations; Saturday Dec. 19 included
23	Wednesday	Second Student Teaching station ends
23	Wednesday	Residence Halls close 3:30 p.m.

Spring, 1982

January 17	Sunday	Residence Halls open 3:00 p.m. for Student Teachers only
18	Monday	College opens; Residence Halls open for all other resident students 10:00 a.m.
		First Student Teaching station begins
19	Tuesday	Classes begin 8:30 a.m.
February 2	Tuesday	Final day for Adding/Dropping courses
15	Monday	Washington's Birthday—no classes
17	Wednesday	Final day for making up *Incomplete* grades from previous semester.
18	Thursday	U.S. & Mass. Constitution Examinations
March 12	Friday	Final day for withdrawal from classes without penalty
19	Friday	First Student Teaching station ends
		Spring vacation begins 4:30 p.m. Residence Halls close 6:00 p.m.
28	Sunday	Spring vacation ends; Residence Halls open 10:00 a.m.
29	Monday	Second Student Teaching station begins
April 4-5-6-7,	1982	NEASC Accreditation Visit
9	Friday	No classes
19	Monday	Patriot's Day—no classes
22	Thursday	Honors Convocation 1:30 p.m.—afternoon classes suspended
May 13	Thursday	Last day of Spring Semester classes
14	Friday	Reading & Review Day
15-22		Final Examination; Saturdays, May 15 & 22 included
21	Friday	Second Student Teaching Station ends
30	Sunday	Commencement, 2:00 p.m.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THE COLLEGE

HISTORY OF THE COLLEGE

The State Normal School in Fitchburg was established in 1894 by an act of the Massachusetts legislature and opened in temporary quarters in the old high school building on Academy Street. Principal John G. Thompson was aided by three teachers, 200 books, and an $11,500 budget for the education of 46 women in a two-year program. In December, 1896, the school moved into its new building and took charge of the Day Street and Highland Avenue city buildings as state schools of observation and practice.

Several years later the Edgerly School was opened on an eight grade model and practice school and in 1910 it became one of the first junior high schools in the United States. The following year a Practical Arts teacher training course for men, the first of its kind in the country, was instituted. The new course assisted in increasing male enrollment.

In 1932, the school was authorized as a four-year college to grant the Bachelor of Science in Education degree and two years later became State Teachers College at Fitchburg. Over the next decades, many departments such as Special Education, Nursing, and Business Administration were added to the existing education departments, and by 1977 Fitchburg State College was offering thirty-one degree programs in the thirteen academic departments to its 3,400 full-time students and 4,600 part-time students. The campus now has 54 acres and 23 buildings.

ACCREDITATION AND MEMBERSHIPS

Fitchburg State College is accredited by the New England Association of Schools and Colleges which accredits schools and colleges in the six New England states. Membership in the Association indicates that the institution has been carefully evaluated and found to meet standards agreed upon by qualified educators.

Fitchburg State College is also accredited by the National Council for Accreditation of Teacher Education and the National League for Nursing.

All ten undergraduate education programs at the College have state, I.C.C. and NASDTEC approval. Graduates of these programs are certified to teach in the Commonwealth of Massachusetts as well as in the 38 states which subscribe to the Interstate Certification Compact (I.C.C.).

Fitchburg State College is a member of the American Association of Colleges of Teacher Education, the College Entrance Examination Board, the American Association of Colleges of Nursing, The American Association of State Colleges and Universities, American Association of University Women, the International Association of Colleges and Universities, the American Council on Education, and the New England Association of College Admissions Counselors.

GOALS AND OBJECTIVES

THE COLLEGE COMMUNITY

GOAL: A paramount objective of Fitchburg State College is the promotion of the welfare of the entire College community. To this end the College has established the following objectives:

1. To provide a systematic evaluation of present programs, policies, practices, and of all the members of the College community, as well as the regular assessment of needs in conjunction with short, medium, and long-range planning;

2. To strive for the recognition of and respect for the rights and responsibilities of all members of the College community;

3. To establish and maintain well-defined and open channels of communication throughout the structure of the College;

4. To maintain a clearly defined system of governance which calls for active participation by representatives of students, faculty and administrators; and

5. To encourage individuals in their search for truth and in the honest consideration of ideas both in the classroom and in communication with all members of the College community.

STUDENT DEVELOPMENT

GOAL: The intellectual, esthetic, and moral development of students during their college years demands the existence on campus of an attitude or climate suitable to the attainment of this goal. Therefore, the College aims:

1. To develop a spirit of commitment to learning by stressing high standards of intellectual performance by encouraging scholarly research, by developing the ability to analyze and synthesize knowledge from a variety of sources, and by communicating the conviction that learning is a life-time process;

2. To enable students to acquire knowledge in areas such as the Humanities, Social Sciences, Physical Sciences, Biological Sciences and Mathematics as well as a depth of knowledge in at least one academic discipline and/or interdisciplinary studies;

3. To strive for moral development which requires reflection on and self-appropriation of ethical principles as a guide for personal conduct, as a basis for self-esteem, and as an aid to growing in respect for others;

4. To assist students to:

   a. recognize the great moral issues of our time,

   b. develop respect for all peoples,

   c. seek the improvement of the quality of human life in areas such as environment, social problems and other relevant issues of the day; and,

5. To establish those conditions which are conducive to an esthetic environment that involves students and faculty in the determination and promotion of cultural activities.

CAREER EDUCATION

GOAL: The College aims to assist students in identifying their own personal goals and in deciding their careers. To attain this goal, the College strives:

1. To prepare students to meet the needs of society through careers in areas such as teaching, nursing, medical technology, human services, business and industry, and government, among others;

2. To provide programs preparing students for these careers, including programs geared to new and emerging career fields;

3. To provide options and opportunities, including field services, which aid students in securing employment; and,

4. To provide additional training opportunities intended to renew and update persons already holding jobs.

THE MONTACHUSETT COMMUNITY

GOAL: The College must acknowledge some responsibility touching on the life of the local, regional, state and national communities. To this end it aims:

1. To serve as a cultural and intellectual Center for these communities;

2. To cooperate with local, regional, state and federal agencies in attempting to solve local, regional, state and national social, economic or governmental problems;

3. To provide for continuing adult education;

4. To facilitate involvement of students in neighborhood and community service activities; and,

5. To make the most effective and efficient use of the human, natural and material resources provided by these communities.

ADMINISTRATIVE PROCEDURES

AFFIRMATIVE ACTION POLICY

It is the policy and commitment of Fitchburg State College not to discriminate on the basis of race, sex, age, color, national origin, religion or handicap in its educational programs, activities, admissions, or employment policies, and to actively comply with Title IX of the 1972 Education Amendments, Executive Order 11246 as amended, Section 504 of the Rehabilitation Act of 1973, Titles VII and VIII of the Public Health Service Act and all other pertinent state and federal regulations.

In keeping with the Title IX of the 1972 Education Amendments Act, Fitchburg State College guarantees that no student shall be excluded from participation in, denied the benefits of, or be subjected to discrimination in any of the College's programs or activities. This assurance extends to all aspects of the operation of the College affecting students, such as admissions, financial aid, counseling of all types, classroom procedures, academic and educational programs, athletics, housing, funding of activities, and use of facilities.

CONFIDENTIALITY OF STUDENT RECORDS

This is a summary of the **Massachusetts State College System Guidelines Pertaining to Confidentiality of Student Records.** Copies of the Guidelines are available for study at the library and at offices where records are kept.

Education records include "records, files, documents and other materials which . . . contain information directly related to a student" and "are maintained by an educational agency or institution." The following are excluded: personal files of faculty and administrators; law enforcement records; medical, psychiatric, or psychological records and, employment records of non-student personnel.

Directory Information "includes a student's name, address, telephone listing, date and place of birth, school or college, major field of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational agency or institution attended by the student."

The College will release directory information upon request unless the student involved requests in writing that it be suppressed. Such request must be made annually no later than October 1st or, for second semester entrants, February 1st.

Access Rights of Students: Students may have access to records other than those pertaining to parental financial information and those containing confidential evaluations and recommendations written prior to January 1, 1975. A student may waive his/her right to access to materials submitted after that date but must not be required to do so. When a waiver has been employed, the student may, upon request, be notified of the names of those who have submitted evaluations or recommendations.

Access Rights of Others: No one shall have access to education records without written consent by the student except for the following:

1. Faculty and staff who have a legitimate interest;
2. Federal auditors who require information by state and federal statute;
3. Financial aid personnel processing applications;
4. Research agencies which must use data in such a way that individuals cannot be identified and who will destroy the information when it is no longer needed;
5. Accrediting agencies;
6. Parents of dependent students under certain conditions; and
7. Others in emergency situations involving health or safety.

How to Gain Access to a Record: A student who wishes to examine a record must obtain a request form from the Dean of Students' Office upon presentation of a proper identification card. The request form must be completed, and a photostat together with the identification card presented to the office where the record is kept. Only the permanent card (transcript) is considered as a "permanent educational record." Other records may be destroyed in accordance with established schedules. Students may challenge contents of a record. The keeper of said record will discuss the challenge and indicate steps available to the student. The correctness of an assigned grade is not open to challenge but the accuracy of its recording is.

Types and Locations of Records: The following listing denotes types of records and the record keeping office in the daytime session of the College. Students in other sessions of the College should consult with the offices of those Divisions to determine their record-keeping locations.

Type of Record	Office of Record
Academic	Registrar
Admissions (Transcripts, etc.)	Director of Admissions
Athletic	Director of Athletics
Disciplinary	Student Personnel Services
Financial	Business Office
Financial Aid	Director of Financial Aid
Placement	Director of Placement
Scholarships	Associate Dean of Students
Veterans	Registrar

Since physical location of offices is subject to change, the student should consult the directory at the Highland Avenue entrance to the Administration Building.

Questions related to the material above should be referred to the Student Personnel Services Office. Again, it should be noted that the above is a digest and that the complete guidelines are available for study at the offices listed above and in the Library.

PRIVACY AND CONFIDENTIALITY REGULATIONS PURSUANT TO FAIR INFORMATION PRACTICES ACT

Privacy and Confidentiality regulations pursuant to the Fair Information Practices Act—F.I.P.A.—(Chapter 776 of the Acts of 1965) are posted, together with a copy of the Chapter 776 and the name of the F.I.P.A. administrator on appropriate bulletin boards at the College. They may also be examined at the administrative offices of the College and of the F.I.P.A. administrator.

Included in these regulations are the following sections intended to implement this law.

I. Intent
II. Definitions
III. Implementation Responsibilities
IV. Security Procedures
V. Maintaining Records of Data Usage
VI. Access to Personal Data
VII. Data Subject Objection
VIII. General Procedures
IX. Enforcement Procedures

Students should note that if any of these regulations should conflict with applicable provisions of the federal Privacy Act of 1974, as amended or of any regulations promulgated pursuant to said act, the provisions of said federal act or federal regulations shall control.

HANDICAPPED STUDENTS

Handicapped students are welcome and the College will attempt to satisfy their needs. It is important that handicapped students identify their special needs on their application so that the Registrar can make necessary arrangements.

ADMISSIONS

GENERAL POLICY

Fitchburg State College endeavors to offer admission to those students whose high school records and backgrounds offer promise of a successful and satisfying college experience. Each applicant is considered individually, and the decisions of the Committee on Admissions are based on many factors. Consideration is given to applicants regardless of their race, religion or national origin.

Taken into consideration are the high school record, scores on tests administered by the College Entrance Examination Board, recommendations by the high school principal, guidance counselor or teachers, and the extracurricular and outside-of-school activities. Strong emphasis is placed on the high school record and rank in class.

Fitchburg State College supports the efforts of secondary school officials and governing bodies to have their schools achieve regional accredited status to provide reliable assurance of the quality of the educational preparation of its applicants for admission.

Applications are accepted beginning in October. In order to be given consideration the application and all supporting credentials should be received by March 1 for freshmen candidates and April 1 for transfer candidates for fall semester admission. Credentials should be received by December 1 for admission to the spring term.

APPLICATIONS

It is necessary that applicants to the College comply with the following requirements:

1. An Application Form should be submitted to the Massachusetts State College System as early as possible during the senior year in high school. Applications may be obtained at high schools, Community Colleges, or State Colleges throughout the Commonwealth of Massachusetts.

2. A transcript of the complete high school record through the first marking period of the senior year should be submitted and should show a minimum of 16 units, preferably in college preparatory subjects. (All students, before entrance to college, must be graduated from high school or offer equivalent preparation.)

3. The College Entrance Examination Scholastic Aptitude Test (SAT) scores and the Student Descriptive Questionnaire (SDQ) must be submitted. The College welcomes the results of the College Entrance Board Achievement Tests. Many candidates present Achievement Tests in English and applicants who expect to continue in a foreign language in college should take an Achievement Test in that language. Other Achievement Tests may be taken in the student's major fields of interest. Note that it is the applicant's responsibility to arrange for the forwarding of the necessary test scores di-

rectly to the College from the Educational Testing Service in Princeton, New Jersey. The college code number is R 3518.

4. A recommendation of the applicant from his or her high school principal, guidance officer or teacher, giving evidence of academic interest, ability, and preparation should be sent to the Admissions Office.

5. A "Gap Letter" or resume of activities is required if there has been a time lapse between high school graduation, further schooling, and the application process to Fitchburg State College.

Interviews are not required but can provide the Admissions Committee with helpful information. Applicants who desire to have an interview or to visit the campus are invited to write the Admissions Office for an appointment. Interviews are not scheduled on Saturdays or holidays.

Fitchburg State College employs a "rolling admissions" policy. Rather than a simultaneous notification of all applicants of their acceptance, the candidates are notified on a continuing basis over a period of several months, beginning in the early part of January for September applicants.

TRANSFER STUDENTS

Transfer students are welcome at Fitchburg State. Only students with satisfactory academic and personal records can be considered. An applicant will be considered as a transfer applicant if he/she will hold more than 12 semester units (18 quarter units) of college credit by his/her planned entrance date.

It is important to recognize that to be eligible for transfer the applicant must have a grade point average of 2.0 or better. A "C" average does not guarantee admission to the College.

Inquiries regarding the length of time required to complete a degree should be addressed to the Admissions Office.

It is the policy of the College that a student transferring from a two-year institution is entitled to transfer no more than the two years of credit which constitute the requirement of the Associate Degree program taken as a unit.

The following credentials must be submitted by transfer applicants:

1. Application for Admission.
2. Transcript or transcripts of all previous college work, including a statement of honorable dismissal from the last college attended.
3. A catalogue from the previous college(s) with the courses taken clearly marked.
4. A "Gap Letter" or resume of activities is required if there has been a time lapse between high school graduation, further schooling, and the application process to Fitchburg State College.

Transfer credits will normally be granted for work completed in other accredited colleges which was of passing grade or better. Full credit will be given to transferred courses which coincide with those offered at Fitchburg State. A preliminary credit evaluation will be sent with the student's acceptance letter.

This evaluation is made only after an application has been processed and admissibility has been determined.

The grade point average from the previously attended college is dropped and the grade point average is newly established at Fitchburg State.

A student who has completed the general education requirements of one State College prior to transferring to another State College will not be obliged to meet additional or different general education requirements of the receiving college with the exception of students transferring to the Maritime Academy.

Transfer students exempted from a three-hour Composition requirement in any accredited college or junior college may be exempt from EN 100. No credit is to be given. Students exempted from a six-hour Composition requirement will be exempt from EN 100 to 120. No credit is to be given.

In accordance with the Board of Trustees' policy the following guidelines have been established:

1. Applicants for transfer to any college in the Massachusetts State College system will be evaluated for admission on the basis of their previous college academic record.
2. Whenever possible, degree credit will be granted for course work completed at recognized institutions of higher education. Courses which do not fit the degree program may be counted as fulfilling the open elective requirements of the four-year curriculum. The transfer student will be required to fulfill the same degree requirements as any other student.
3. A student transferring from a baccalaureate level college must successfully complete at least 30 credits as a Fitchburg State College student to receive a degree, which normally must be the senior year.
4. Among equally qualified and eligible transfer applicants, priority in admissions will be as follows:
   a. First priority is given to transfer students in good standing from within the State College system.
   b. Second priority is given to qualified transfer applicants from Massachusetts Community Colleges.

To be given consideration, all applications should be made to the College by April 1.

FINANCIAL ASSISTANCE & STUDENT COSTS

STUDENT COST

The following list includes the essential expenses (exclusive of such items as clothing, travel, and entertainment) for which a student would budget for an academic year.

Application Fee (not refundable nor applicable to tuition) $10

TUITION:
In State: ..... $725 ($341 1st Sem., $384 2nd Sem.)
Out of State: ..... $2538 ($1194 1st Sem., $1344 2nd Sem.)
Registration Fee (not refundable but applicable to tuition) $50
Student Activity Fee ..... $36 ($18 per semester)
Athletic Fee ..... $48 ($24 per semester)
Books, Supplies ..... Approximately $200
Library Fee ..... $10 ($5 per semester)
Placement Fee (senior only) $5.00
Resident Hall Deposit (Not refundable but Applicable to second semester room charge) $50
Room and Board ..... (See item 5, page 20)
Educational Service Fee ..... $15 ($7.50 per semester)
Campus Center Fee ..... $30 ($15 per semester)
Health Fee ..... $22 ($11 per semester)
Residence Hall Damage Deposit $50
Orientation Fee ..... (one time) $20
Student Teaching (usually seniors only) $75
Insurance (optional) ..... Approximately $63

All fees are subject to adjustment by the Board of Trustees of State Colleges in keeping with changing costs of operations.
All bills must be paid with either cashiers checks, money orders, bank checks or travelers checks. No personal checks will be allowed.

1. **Application Fee**
   $10 (not refundable nor applicable to tuition).

2. **Tuition**
   A. For residents of Massachusetts: $725 per year—payable in two installments of $341 the first semester and $384 the second semester.
   B. For non-residents: $2538 per year—payable in two installments of $1194 the first semester and $1344 the second semester.
   C. For persons age 65 or over, with an annual income less than $12,000, no tuition for courses with available seating after tuition-paying students are enrolled.

3. **Registration Fee**
   A registration Fee of $50 is required of all new students upon acceptance. It is not refundable, but is credited against the first semester tuition for students enrolling in the College.

4. **Student Activity Fee and Athletic Fee**
   All students are required to pay a Student Activity Fee of $36 per year ($18 per semester) and an Athletic Fee of $48.00 per year ($24.00 per semester). These non-refundable charges support certain extra-curricular and organizational programs on campus.

5. **Room and board for Resident Students**
   The cost of board is $754 per academic year for the five-day plan; $798 per academic year for the seven-day plan; $350 per academic year for the five-day lunch plan, but the room cost depends on the hall to which the student is assigned. The maximum charge for room at present is $1130 annually and is payable in equal installments at the beginning of each semester.

   A residence hall deposit of $50.00 is required of all students accepted for rooming in a College residence hall. This payment, not refundable, is credited against the second semester room charge.

6. **Tuition Refund Policy**
   A. For new students, freshmen and transfer, there is a $50.00 non-refundable tuition deposit. Such deposit shall be credited to the student's first semester tuition charges. If such a student withdraws prior to the beginning of classes or within the first week of the beginning of classes, two-thirds of the tuition charge shall be refunded. If the student withdraws between the end of the first week and the end of the

second week, one-half the tuition charge will be refunded. If the student withdraws between the end of the second week and the end of the third week, one-third of the tuition charge will be refunded. A student withdrawing after the third week of classes shall receive no refund.

B. For returning students: A student who has paid tuition prior to the opening of school and who notified the school that the student will not be attending any class will be entitled to a full refund of all tuition and fees. If the student withdraws between the beginning of classes and the end of the first week, two-thirds of the tuition charge will be refunded. If the student withdraws between the end of the first week and the end of the second week, one-half the tuition charge will be refunded. If the student withdraws between the end of the second week and the end of the third week, one-third of the tuition charge will be refunded. A student withdrawing after the third week shall not be entitled to any refund.

7. All costs listed above reflect Trustee Policy as of January 1, 1981. Costs may increase if so voted by the Board of Trustees.

PAST DUE STUDENT ACCOUNTS

Any indebtedness to the College which becomes past due, immediately jeopardizes the student's enrollment, and no such student shall be permitted to graduate or register for a subsequent semester or summer school term. Further, any student who fails to pay all indebtedness to the College may not be issued diplomas, degrees, or other official statements, unless otherwise mandated by law.

"It is the policy of the Board of Trustees of State Colleges and of each of its member State Colleges, effective September 20, 1979, that students or former students at any of the State Colleges who are listed by the financial office of said State College as having unpaid debts for tuition, room, board, medical or other College related charges where said debts have not been discharged by operation of law or where deferred payment of said debts has not been agreed to by said College will not (1) be *issued* any *diploma* to which said students might otherwise be entitled; (2) be permitted to register for any program at any State College for which said students might otherwise be eligible; and (3) be furnished a certified copy of any State College transcript (unless said transcript is needed to obtain any benefits related to service in the United States armed forces) although said students will be entitled, upon written request, to inspect and review uncertified copies of their transcripts."

VETERAN EDUCATION

Fitchburg State College is an approved institution for providing education for the veteran.

Veterans are urged to keep themselves informed about benefits available to them through the Veterans Administration. Information may be obtained from:

John F. Kennedy Federal Building
Veterans Administration—
Regional Office
U.S. Government Center
Boston, Mass. 02203

Vietnam Veterans from Massachusetts are entitled to attend Fitchburg State College on a no-tuition basis. Additional information may be obtained from:

The Commonwealth of
Massachusetts
Department of Education
31 St. James Ave.
Boston, Mass. 02116

FINANCIAL AID AND SCHOLARSHIPS

Fitchburg State College will attempt to award financial assistance to any academically qualified student whose family and/or personal resources are insufficient to meet the College costs. The premise of Financial Aid programs is that parents and students are primarily responsible for meeting college costs. When the costs involved exceed the amount parents and/or students are reasonably able to contribute, financial need exists. Financial assistance is considered a supplement to the family contribution and is based on financial need, which is the difference between the family's resources and the amount of educational costs at the College.

Fitchburg State College administers and coordinates a variety of financial aid programs. Financial Aid is based on need and the availability of funds. It is contingent upon the student's satisfactory progress in his/her course of study.

Students should begin application procedures well in advance of the term during which they are seeking assistance and should observe the deadline for the various programs for which they apply. Those interested in specific programs or seeking specific or updated information should consult the Financial Aid Office as early as possible for assistance in their financial aid planning.

Applicants for financial aid must be citizens of the United States or permanent residents. A Financial Aid Form (FAF) must be filed with the College Scholarship Service in Princeton, N.J., and should indicate the code R3518 for Fitchburg State College. Forms are available in either high school guidance offices or in the Financial Aid Office at the College.

Note: Massachusetts residents must use the Massachusetts Financial Aid Form.

Students should file for the Basic Educational Opportunity Grant. In order to do so, item 46 on the Massachusetts Financial Aid Form must be checked yes and Fitchburg State College must be listed as a recipient. In approximately four to six weeks applicants will receive the results from the Basic Grant Program. These should be submitted to the Financial Aid Office for processing with a Fitchburg State College Application for Financial Aid and a notarized copy of parents' or students' previous year Federal Income Tax Return (1040, 1040A).

Note: The determination of which tax return should be submitted is based on students' dependency status. In order to be considered as an independent student, all questions in items #11, 12, 13 must be able to be answered in the negative.

The *DEADLINE* for submission of the FAF and all supporting documents is *April 15*.

Below are brief descriptions of the types of financial assistance available at Fitchburg State College. For additional information, please contact the Financial Aid Office to request a copy of the Financial Aid Handbook.

Gift-Aid

Gift Aid is usually in the form of grants or scholarships and is called "gift-aid" because it does not have to be repaid or worked for.

The following forms of "gift-aid" are available at Fitchburg State College:

BASIC EDUCATIONAL OPPORTUNITY GRANT (BEOG)

The Basic Educational Opportunity Grant program is a federally sponsored entitlement program designed to assist students who have exceptional need. Grants may be as high as $1800 during an academic year (June 1 to June 30). A BEOG must be reapplied for prior to every year of undergraduate study and cannot be awarded for more than four full-time years of study.

The BEOG is considered to be the "floor" or base of a financial aid package. In many cases, it will be combined with aid from other sources. All students applying for financial aid are required to apply for the BEOG.

MASSACHUSETTS STATE SCHOLARSHIP PROGRAMS

The Massachusetts Board of Higher Education administers seven state scholarship programs for Massachusetts residents. The Massachusetts Information and Instruction leaflet contains all information as well as specific application instructions. The leaflet is contained with the Massachusetts Financial Aid Form (MFAF), available at a college or university financial aid office or a high school guidance office.

All Massachusetts students are required to apply for the Massachusetts General State Scholarship. The maximum award for a public institution in Massachusetts is $500 in an academic year. Students are notified of this award directly from the Board of Higher Education, Boston, Massachusetts. Awards are based on financial need. Students attending Fitchburg State College or

planning to attend may also apply for the following State Scholarship Programs:

*Special Education
Fire, Police, Corrections
Honor

*Students at Fitchburg State College must apply directly to the College for the Special Education Scholarship in this booklet.

OTHER STATE'S GRANTS

Students from Connecticut, Rhode Island, Pennsylvania, Vermont and New Jersey may be eligible to receive a State Scholarship from their respective state. Each scholarship program has varying guidelines and deadlines, therefore, students are urged to contact the state scholarship program in their state for further information.

SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANT

The Supplemental Educational Opportunity Grant is awarded to only those students with extreme financial need who would otherwise be unable to attend a post-secondary institution. The grants may range between $200 and $1500 per year, but cannot exceed $4000 over the course of a four year program of study.

However, awards are limited by the amount the college receives from the government and they must be matched dollar for dollar from another source of aid. This is a federally funded program administered by the College.

NURSING SCHOLARSHIP PROGRAM

The Nursing Student Scholarship Program is for students pursuing an education in the field of Nursing and who are in need of financial assistance. Scholarships may range between $200 and $1500 per academic year, contingent upon funding by the federal government. The Nursing Scholarship is administered by the College.

FITCHBURG STATE COLLEGE SCHOLARSHIPS

In addition to the above federal and state programs, Fitchburg State College has a number of scholarships of its own. They are awarded at various times throughout the year and are publicized via bulletin boards and other campus media. Additional information may be obtained from the Financial Aid Office. Applications are available after the first of the year in the Financial Aid Office. Deadline for submission of applications for the following scholarships is March 1.

The following scholarships are administered directly by the College Scholarship Committee and require that a FAF be on file to assist in the evaluation of need.

The M. Lillian Smith Scholarship ($100.00)—To be awarded to a student pursuing a course of study in Education.

"Buddy McMurray Good Fellowship Award" will be awarded to a student whose contribution to the College is positive, salutary, and inspirational of the goals for which they entered Fitchburg State College.

Hammond Band Scholarship ($100.00)—Available to the full-time undergraduate student chosen as the outstanding member of the Fitchburg State College Band.

LeBlond-O'Sullivan Memorial ($100.00)—Available to full-time juniors or seniors with financial need and a record of service to the College.

Parking Scholarships ($300.00)—Made available from fines collected for illegal parking on campus to full-time students who have completed at least one semester and have at least one year remaining at the College.

Performing Artists and Athletes ($300.00)—This scholarship alternates yearly between outstanding performing artists and athletes who are full-time undergraduate students.

Special Education ($100.00 to $300.00)—Available to full-time day students who are special education majors and graduates of a Massachusetts high school.

Carl T. Witherell ($300.00)—Available to full-time undergraduate students who are industrial arts majors, preferably members of Epsilon Pi Tau.

Alumni Scholarships ($100.00)—Available to currently enrolled students with financial need who are in good academic standing. Apply through the Fitchburg State College Alumni Association.

Fitchburg Business and Professional Women's Club ($300.00)—Available to full-time women students commuting from Fitchburg, Ashby, Ashburnham, Lunenburg, Townsend or Westminster, who have completed one year satisfactorily.

Grace Gummo Nursing (amounts vary)—Available to deserving students in the nursing program.

Leominster Business and Professional Women's Club ($400.00)—Available to women residents of Leominster.

Student Government Association (amounts vary)—Available to sophomores, juniors or seniors with a 2.2 cumulative average and a record of leadership. Apply to the Student Government Association.

The Mattie N. Antila Poetry Award ($100.00)—This is an annual prize awarded to a student at Fitchburg State College for a poem. The award is made possible from Fauri and Signe Sipila in memory of Signe's parents, Matti N. and Fanny P. Antila.

ARMY ROTC SCHOLARSHIP PROGRAM

The Army ROTC scholarship is designed to offer financial assistance to outstanding young people in the Army ROTC program. The ROTC Scholarship Program has approximately 12% of its cadets on full scholarship, which covers tuition, lab fees, books, and $100 per month for 10 months a year. Three, two and one year scholarships are also available for enrolled students taking ROTC. The four-year scholarships are normally awarded prior to the start of the student's first year. The Army has increased the number of scholarships it awards from 6,000 in 1980 to 12,000 in 1981-1982.

Recipients of Army ROTC scholarships are required to serve on active duty in the Army for a period of four years, followed by a period of two years in the inactive Reserves. Scholarship recipients are expected to enter active duty immediately following graduation; unless the student has been accepted to graduate school, for which educational delays of up to two years are available.

ROTC/NATIONAL GUARD SIMULTANEOUS MEMBERSHIP PROGRAM

As a member of both the Massachusetts National Guard and Army ROTC the student will receive financial assistance covering tuition costs (approximately $600 per year), plus up to $1,200 per year in pay for National Guard duty. Upon completion of National Guard Basic Training or its ROTC equivalent the student is eligible to enter the ROTC Advanced Program during which a living allowance of $1,000 per year (tax free) is provided in $100 monthly increments.

Further details are available. Write the Military Science Department, Fitchburg State College.

SELF-HELP

Self-Help is in the form of loans and work. The following forms of self-help are available at Fitchburg State College.

NATIONAL DIRECT STUDENT LOAN PROGRAM

The National Direct Student Loan is a long term, low cost loan, designed for educational purposes. Eligible undergraduate students may borrow up to $2500 during the first two years, but not more than $5000 during the undergraduate years. Awards are contingent upon available funds and number of applicants.

The interest rate of 3% is charged on the unpaid balance of the loan. Students will be required to make minimum payments of $90 per quarter depending upon the total amount of the loan. Payments and interest commence nine months after graduation or termination of student status. All terms of the National Direct Student Loan are stated on the Promissory Note and Truth-In-Lending Statement, copies of which will be provided to those requesting such information, as well as a sample loan repayment schedule. Provisions are available for deferments, postponements and/or cancellations for some specialized areas.

NURSING STUDENT LOAN PROGRAM

The Nursing Student Loan Program is designed for those students in need of financial assistance to further their education in the field of Nursing. Loans may range between $200 and $1500 per academic year and an interest rate of 3% is charged on the unpaid balance of the loan.

Payments and interest charges do not begin until nine months after graduation or termination of student service. Visit the Financial Aid Office for more information governing repayment, deferment and cancellations of Nursing Loans and request the booklet "Nursing Student Loans."

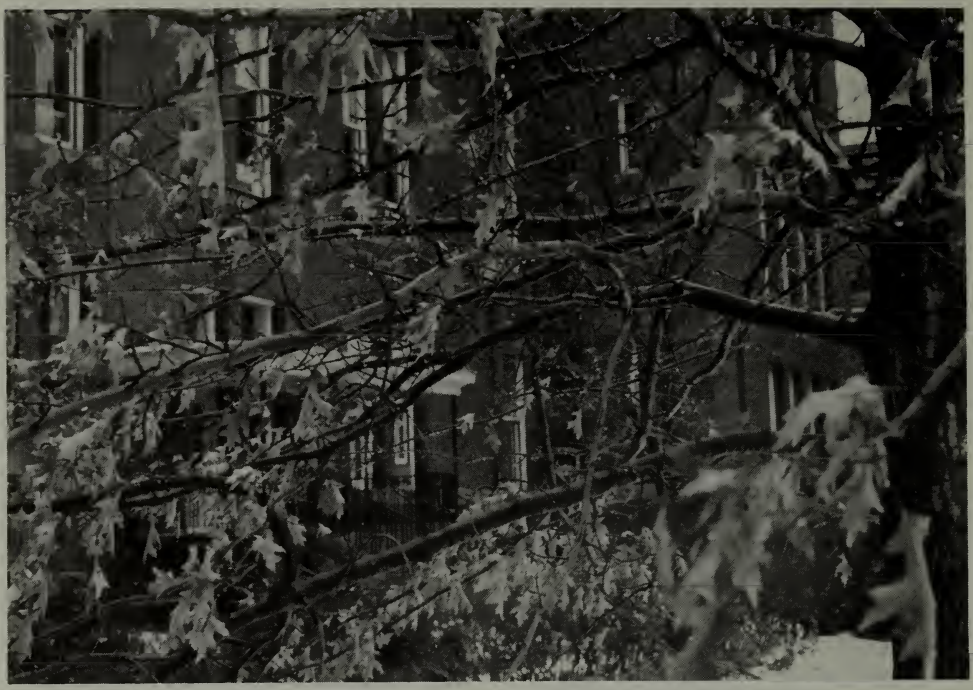
Loans are limited by the amount of money the College receives from the Federal Government.

GUARANTEED STUDENT LOAN PROGRAM

The Massachusetts Higher Education Assistance Corporation enables students to apply to local banks and lending institutions for education loans to help meet their educational costs. While the student attends college the government pays the 7% interest rate on the loan. The Financial Aid Office has a listing of all participating lenders in Massachusetts.

EMERGENCY LOANS

Small loans of up to $50 for unexpected non-college bills may be obtained by students from the Office of the Vice President for Student Services. The loans must be repaid within sixty days. The student must have collateral or show an ability to repay the loan within sixty days or by the end of the semester, whichever comes first. The student should visit the Office of the Vice President for Student Services to obtain additional information on this program.



WORK STUDY

COLLEGE WORK STUDY PROGRAM

The College Work Study Program is a federally funded program providing an opportunity for part-time employment on campus for students with financial need. Students with particular skills or talents are requested to enter that information on the FSC application for financial aid. The work assignments are in most cases ten hours a week. Students will be paid directly for the hours worked on a weekly basis.

FITCHBURG STATE COLLEGE EMPLOYMENT

In addition to the federal program, the College offers part-time employment on campus to its students. These positions are not open to students who have had their financial needs met by the other programs mentioned above. Students are paid variable rates depending upon the position. Available jobs are posted and students are required to apply directly to the office advertising for help.

OFF-CAMPUS EMPLOYMENT CENTER

The College Counseling Center and The College Counseling and Career Center has established a new service to help meet the needs of students seeking part-time employment off-campus. This Office, located on the third floor of Edgerly Hall, has canvassed the community and organized a substantial listing of part-time employment openings in the area. These include such positions as babysitting, yard work, construction, caring for the elderly, tutoring, repair work, and a variety of other odd jobs. The hours are often flexible and can be geared to your academic commitments.

ACADEMIC POLICIES

DEGREES

Fitchburg State College is empowered by the Board of Trustees of the Massachusetts State College System to offer the degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Science in Education, and Master in Education.

Bachelor of Arts. The degree of Bachelor of Arts is offered in the following fields: Biology, Chemistry, Computer Science, English, Geography, History, Mathematics, Psychology, Sociology.

Bachelor of Science. The degree of Bachelor of Science is offered in the following fields: Biology, Business Administration, Chemistry, Communications/Media, Computer Science, Geography, History, Human Services, Industrial Science, Mathematics, Medical Technology, Nursing, Psychology, Sociology.

Bachelor of Science in Education. The degree of Bachelor of Science in Education is offered in the following fields: Biology, Early Childhood, Elementary, English, Geography, History, Industrial Arts, Mathematics, Special Education, Teacher of Young Children with Special Needs.

Master of Education. The degree of Master of Education is offered in the following areas of specialization: Counseling, Arts in Education, Elementary Education, Industrial Education, Occupational Education, School Leadership, Science Education, Secondary Education, Special Education. Further information regarding these programs may be obtained through the Office of Graduate and Continuing Education.

Master of Arts in Teaching. The degree of Master of Arts in Teaching is offered in English. Further information regarding this program may be obtained through the Office of Graduate and Continuing Education.

Master of Communications/Media
Master of Computer Science

GRADUATION REQUIREMENTS

In order to graduate from Fitchburg State College with a baccalaureate degree, a student must have successfully completed both the required courses as well as the total number of semester hours necessary for his major program. He must have attained at least a 2.0 cumulative average in the total program as well as in his major field. Before graduation the student shall have completed a minimum of 30 semester hours at the college. All students at the College must file an application for graduation with the Registrar not later than February 1 of the year of graduation.

GENERAL EDUCATION

It is the intent of Fitchburg State College that all students be generally and liberally educated. To this end each student is required to take a distribution of courses in the various disciplines. All baccalaureate candidates at Fitchburg State College are required to take a minimum of 60 semester hours in general education courses. In addition to the required courses in English Composition, Speech, and Health and Fitness, the credits are distributed among

mathematics and the sciences, the social sciences and the humanities. The humanities and social sciences each have a 15 semester-hour requirement, while the math/science area is satisfied by taking four courses distributed among the disciplines. No more than eight semester hours of one discipline may be used to satisfy any of the three requirements.

The *humanities* requirement may be fulfilled by any course in art, music, literature, speech, foreign languages or philosophy. Similarly, the *social sciences* requirement may be fulfilled by taking courses in any of the following disciplines: history, economics, geography, government, political science, psychology, sociology, or anthropology. Finally, the *math/science* distributional requirement may be satisfied by taking courses in mathematics, biology, chemistry, computer science, physics, physical science, earth science, astronomy, meteorology, or geology. A professional or teacher education course will not satisfy a general education requirement. Physical education courses may be used as electives for general education.

CONSTITUTIONAL REQUIREMENT

According to state law, graduates of the College must demonstrate a knowledge of the United States Constitution and the Constitution of Massachusetts. Students may meet these requirements by passing a written examination administered by the Department of Social Sciences. A pamphlet giving further information about the examination and a study guide may be obtained from the College bookstore. Students who successfully complete PS 100, PS 200, PS 220, HI 210 or HI 220 are excused from the examination.

HEALTH AND FITNESS REQUIREMENT

In order to meet the Health and Fitness requirement, students may select one of the following options:

1. One course from Option I;
2. Three courses from Option II; or
3. Two courses from Option II and one from Option III.

Option I includes Health and Fitness, Exercise and Sport Science, Scientific Foundations of Athletic Training and Conditioning, and Jogging: Theory and Practice.

Option II includes Fundamentals of Coaching, Recreational Leadership, Camp Counseling, Introduction to Kinesiology, Consumer Health, Diet Exercise and Weight Control, Figure Control through Weight Training, Weight Training for Athletes, Behavioral Concepts of Sport, Physical Education for the Physically Handicapped, Techniques for Road Racing, Physical Education: An Overview, Sports Concepts, Officiating Volleyball and Basketball, Psychology of Sport, Cardiovascular Health and Exercise.

Option III includes Physical Education: Gymnastics, Volleyball, Tennis, Badminton, Judo, Karate, Cross Country Skiing, Skiing, Backpacking, Mountain Hiking, Canoeing, Folk Dance, Aerobics, Rhythmics, Basketball, Softball, Advanced Tennis, Slimnastics, Downhill Skiing, Horseback Riding, Bicycle Touring, Modern Jazz, and Creative Movement.

GRADING SYSTEM

The grades given academic work at Fitchburg State College run from 0 through 4 with .5 intervals from 1 to 4 (0, 1, 1.5, 2, 2.5, 3, 3.5, 4). Zero indicates academic failure for a course, 1 or 1.5 is poor but passing, 2 or 2.5 is average, 3 or 3.5 is good and 4 is excellent. Quality points are determined by the following process: The number of semester hours in each course is first multiplied by the grade. Thus a student who takes five, three semester hour courses and receives two grades of 3 (18), two grades of 2 (12) and a grade of 1.5 (4.5) has a total of 34.5 points to be divided by the total of semester hours attempted (15) and attains a quality point average of 2.3 for the semester. An average of 3.2 or better qualifies a student for the Dean's List.

Only grades earned in courses at Fitchburg State College are used in determining the cumulative average.

IN is recorded for incomplete, W for withdrawal, and CR for credit.

CREDIT DEFINITION

The College subscribes to the "Carnegie Unit" in determining the value of a semester hour of credit. A student "owes" a course a minimum of 45 hours of class experience, outside work and preparation for one semester hour credit.

HONORS

THE PRESIDENT'S LIST

The President's List honors students for consistently high academic achievement. The student is named to the President's List when he or she has achieved a semester average of 3.75 or higher for three successive semesters. However, should the student drop below 3.75 for a semester, even though the cumulative average remains 3.75 or higher based upon previous semesters' achievement, the student is ineligible for the President's List.

DEAN'S LIST

Recognition of academic excellence is noted by the Dean's List and the notation of Summa Cum Laude, Magna Cum Laude and Cum Laude at graduation. A student is placed on the Dean's List for the semester if an average grade of 3.20 or better is attained, and the student is attending the college full time.

Graduation honors are noted for recognition of an outstanding cumulative average. A student graduates with highest honor, Summa Cum Laude, if the cumulative academic average is

3.80 or higher. Similarly a student will be graduated with high honor, Magna Cum Laude, if the cumulative average is 3.50 or higher, and is graduated with honor, Cum Laude, with an average of 3.20 or better.

OTHERS

Seniors at the College who have high academic standing are eligible to apply for a Fulbright Fellowship for Graduate Study Abroad or a Danforth Fellowship which supports potential college teachers in pursuing their education. The Fulbright advisor contacts eligible students during the spring semester of their junior year. Seniors are also eligible to be selected for *Who's Who Among College and University Students* and *Outstanding Young Men of America*.

ACADEMIC STATUS

GOOD ACADEMIC STANDING

A student is in good academic standing if by the end of both the first semester of the freshman year and through the first semester of the sophomore year the student has obtained a cumulative academic average of 1.75 and maintains a 2.00 cumulative average thereafter. A student who is not in good academic standing is either on academic probation or dismissed from the college. The academic probation schedule may be found under Academic Probation and Dismissal.

A student must have an overall cumulative average of 2.00 for graduation, as well as an average of 2.00 in his major courses.

FULL TIME STATUS

A student is considered to be full time at the College provided that he or she is registered for a minimum of 12 s.h. of course work. If a student must temporarily drop to part time status due to extenuating personal circumstances and if he registers for less than 12 s.h. of course work, the status of his housing, financial aid, athletic eligibility, health insurance, and eligibility for the Dean's List are jeopardized. Subsequently this student must take additional courses during the summer or through a course overload if he wishes to graduate on schedule with his class.

Any student who wishes to be considered for varsity competition must be a full time student who has been admitted by the Director of Admissions and is accounted for by the College Registrar. Students who register through the Division of Continuing Education are not regarded as regular full time students of the College.

ACADEMIC PROBATION AND DISMISSAL

The student's quality point ratio shall be cumulative, semester by semester.

End of Semester	Year	Probation	Dismissal
1	Freshman	1.00-1.50	Below 1.00
2	Freshman	1.50-1.74	Below 1.50
3	Sophomore	1.50-1.74	Below 1.50
4	Sophomore	1.75-1.99	Below 1.75
5	Junior	1.75-1.99	Below 1.75
6	Junior	No Probation	Below 2.00
7	Senior	No Probation	Below 2.00
8	Senior	No Probation	Below 2.00

Under academic dismissal a student must remain away from the College for a minimum of two semesters. He/she is expected to retake failed courses and do satisfactory work at another institution.

A student who has been suspended should consult with the Undergraduate Dean and may appeal to the office of Academic Affairs for readmission. If a readmitted student does not remain in good academic standing, he/she will be subject to dismissal from the College.

ATTENDANCE

Class attendance is a matter for instructor and student to consider. It is the prerogative of the instructor to place a value on class attendance and it is the instructor's duty to inform students of these views early in the semester and to state the policy in the course syllabus.

It is the responsibility of each instructor to maintain a record of attendance for students in classes. Should the need arise for verification of student's attendance, direct reference will be made to the faculty members involved.

Where validation of an absence is available through any source, it is recommended that the student show the validation to all instructors concerned and then place it on file in the Registrar's office.

It is the responsibility of each student to consult with his/her professors prior to an absence or immediately upon his/her return.

STYLE MANUAL

The Modern Language Style Manual for writing is the official style manual for Fitchburg State College unless modified by individual departments for needs particular to their discipline.

AUDITING COURSES

Students are permitted to audit courses, but must have the approval of the instructor. A record of audited courses does not appear on the student's official transcript.

ACADEMIC PROCEDURES

ACADEMIC ADVISING

Academic and general advice is available to all undergraduates throughout their enrollment at Fitchburg State College. Through the department chairman and the undergraduate Dean, each student is assigned an academic advisor knowledgeable in the student's major academic subject area.

Each student is encouraged to consult the academic advisor at any time during the semester regarding any problems encountered. Individual instructors, department chairmen and the undergraduate Dean are also available for academic counseling throughout the semester.

Students must consult with their academic advisor before registering for courses. The academic advisor will then sign and forward the registration materials to the Registrar of the College for processing. All faculty at the College are available to students for three hours a week or by appointment. Their office hours are posted in their departments and are also available in the Office of the Academic Dean.

Faculty advisors are allowed to approve student schedules of between 12 and 18 Semester Hours (S.H.) Students wishing to enroll for courses outside of these limits must obtain the permission of their academic advisor and the Undergraduate Dean. All students will conform to the curriculum requirements at the time of their matriculation in the College. However, the College

reserves the right to alter the curriculum requirements where it becomes necessary to meet statutory, educational, or professional requisites or to assure quality educational programs.

CHANGING COURSES

During the first and second week of each semester students are allowed to change their classes through the use of an Add/Drop form and with appropriate approval. A student must have the approval of the course instructor in order to add or drop a course during this period and must have the approval of the Undergraduate Dean and the academic advisor if this change in schedule results in less than 12 or more than 18 semester hours of course work. Add/Drop forms are available from the Office of the Registrar.

CHANGING MAJOR

Any student who desires to change his major course of study should obtain the appropriate form from the Office of the Registrar and secure the signatures of the chairmen of both the department to be entered and the department being left.

Department chairmen will offer advice and assistance and will assign the student a new academic advisor. A student must then satisfy the requirements of the new major program according to the catalogue of the year of matriculation.

WITHDRAWAL FROM A COURSE

Students may withdraw from a course during the first two weeks of the semester without penalty by notifying the instructor and the Registrar, using the Add/Drop form obtainable from the Registrar's Office. Between the end of the second and the end of the eighth week of classes, students may withdraw by obtaining the permission of the instructor and faculty advisor. Students who withdraw during this period will receive a grade of "W." Any student who fails to follow these procedures will automatically receive an "F" (grade "0") for the course. A student who withdraws from a course after the eighth week of a semester will be assigned an "F" grade unless extenuating circumstances warrant further consideration.

GRADING PROCEDURE

INCOMPLETE GRADES

The grade of Incomplete (IN) may be given only if at least 80% of the course work has been completed at the time of discontinuance due to illness or similar disability. Incomplete grades must be made up within four weeks after the opening of the semester following that in which the student received the IN grade. The "IN" becomes an "F" grade if the student fails to make up the work within the prescribed time limit. Incomplete grades do not affect a student's dismissal or retention by the college.

MAKE-UP OF FAILING GRADES

If a student fails a course, his grade for that course is zero. It will be crossed out when the course is retaken and passed. In this manner a student may raise his/her cumulative average. A student may not retake a course in which a grade of "D" was given and have the second grade counted in his average.

WITHDRAWAL AND READMISSION TO THE COLLEGE

WITHDRAWAL FROM COLLEGE

Students who leave the College, either during a semester or between semesters must complete a WITHDRAWAL FORM which may be secured at the Associate Dean of Students' Office. Students who withdraw within the first eight weeks of the semester will receive "W" in each course. Students who leave the College after the first eight weeks will receive "F" grades in all their courses.

READMISSION AFTER SUSPENSION

If a student has been suspended from the College for academic reasons, he must remain away from the College for two semesters before requesting readmission. During this time the student must retake the courses which he failed, thereby raising his cumulative average to the minimum required for his class. The academic work completed in the interim is evaluated by the Registrar and the Undergraduate Dean prior to readmission.

A student who is suspended twice for academic deficiencies may not again apply for readmission. Appeals to these policies may be made to the Office of Academic Affairs.

RETURN AFTER WITHDRAWAL

A student who withdraws from the College in good standing without completing their baccalaureate studies may return to the College upon request to the Registrar. To insure his return at the time desired, the student should make such a request to the Registrar before May 1 for the Fall semester or before December 1 for the Spring semester.

In determining "good standing" the College will consider academic and social records (College Judicial Board) as well as financial records of the applicant student.

STUDENT TEACHERS

CERTIFICATION PROCEDURES

All senior education majors are responsible for checking graduation requirements and certification procedures at the beginning of their senior year. Certification procedures will be discussed at scheduled meetings early in the semester.

SCREENING POLICIES FOR STUDENT TEACHING

1. Positive recommendation of a majority of the faculty members in the area of the major and/or specialization.

2. A demonstrated effectiveness in oral and written communication as evidenced by use of currently acceptable levels of English.

3. The successful completion of the tuberculin test.

4. The Teacher Education Council requires that each candidate for student teaching possess a 2.00 cumulative index and a 2.50 index in the major field of study, as each department defines "major field." No incomplete in any course is allowed. No probatio-

nary status is allowed. No unresolved failure is permitted in a candidate's major field.

5. A student convicted of a felony as defined and identified by the courts of any state is automatically ineligible for a teacher education program.

6. All transfer students are required to take 12 semester hours from at least three different professors within their respective departments prior to student teaching.

Appeals to any of the above should be directed to the secretary of the Teacher Education Council.

NOTE: An incomplete or failure in student teaching necessitates the repetition of the course. Each student must furnish transportation to the teaching assignments.

SPECIAL ACADEMIC PROGRAMS

FRESHMAN HONORS PROGRAM

Each year twenty of the top ranking entering freshmen are invited to join the Freshman Honors Program in which they participate in an integrated program of four courses which are designed to be more rigorous and challenging than the standard freshman program. During the fall semester students study the 19th Century in the History of Modern Europe, the Art of Music, and freshman English. During the spring semester the three courses center around the 20th Century, its art, history and literature. Thus, the topics in the academic courses parallel each other chronologically and cover the various aspects of the 19th and 20th Centuries.

The freshmen honors students also participate in a one semester hour seminar in which scholars from many different areas lead discussions of contemporary issues in their fields. Several times throughout the semester the faculty who teach the honors courses meet in fish bowl fashion to discuss the themes common to their courses and the subject matter of the century under discussion. Some of the topics of the joint faculty discussions have been Nature and Romanticism in the 19th Century, Nationalism, Artist in Exile in America in the 20th Century.

AID PROGRAM (ALTERNATIVES FOR INDIVIDUAL DEVELOPMENT)

The AID program is designated for all students who possess the motivation and academic potential to receive a college education, but have been denied this access because of social, economic, or educational disadvantages. Paramount concerns are recruitment, education, and graduation of these students.

Another function of the program is to provide educational opportunities for those who were graduated from high school some years ago. Counseling and support groups are also available for these students.

Through the recommendation of teachers, counselors or other responsible persons and the recruitment process, students are considered for admission. Appropriate test evaluations and interviews are utilized to determine an admissions decision.

Those students accepted in the program will receive supportive services in developmental reading, English and writing skills, mathematics, study skills and necessary tutoring in academic subjects. Also included in the program are personal and academic counseling, peer counseling, assistance in locating financial resources, and in developing the sophistication and interpersonal skills necessary to succeed in college and life.

COURSE EXEMPTION

CLEP PLACEMENT EXAMINATION

The primary goal of the College Level Examination Program (CLEP) is to make it possible for an individual to earn college credit on the basis of examinations. CLEP is a program of the College Entrance Examination Board. The CLEP examinations are very useful for traditional and regularly enrolled students, but they are especially valuable for people whose learning experiences have taken place primarily outside college classrooms.

CLEP POLICY

General Policy: Appropriate credit can be granted on the basis of general and/or individual Subject Examination results. However, a student may not be awarded more than 60 college credits through the CLEP program.

Specific Policies:

1. Credit for, or waiver of courses will be recorded only for students who have matriculated at Fitchburg State College.

2. Credit earned or requirements waived will be recorded by the Registrar upon receipt of an official score report from the College Entrance Examination Board. In recording results from Examinations for which an essay or practical examination is required, approval from the major department will be necessary. (Approval = Pass/Fail).

3. Credit for the General, or for any of the Subject Examinations will not be granted if the student has completed satisfactorily, one or more of the courses listed as equivalent courses to

or having similar content to a CLEP Examination.

4. In order to receive transfer credit obtained under CLEP from another institution, the applicant must have a score which is equal to or greater than that score which is the required minimum for credit at Fitchburg State College.

5. The minimum score recommended for each CLEP Examination is based upon the Median (50%) score obtained by students in the normative group.

6. The credit award for each CLEP Examination is based upon the candidate attaining a score equivalent to or greater than the scores listed. The median scores, equivalent courses, credit hours, and policies specific to the General Examination and Subject Examinations are available in the Career Planning and Placement Office.

Evaluation:

1. This policy shall be periodically evaluated to determine its appropriateness in terms of the education objectives of Fitchburg State College.

2. The Subject Examinations of CLEP are constantly being expanded to include additional subject areas. As soon as score interpretation material is available for evaluation, additional CLEP Examinations will be added. The granting of credit for these new Subject Exams should follow the general policy suggested in this Policy Statement.

ADVANCED PLACEMENT EXAMINATION

Students who score 3, 4, or 5 on the Advanced Placement Examination will receive advanced placement in the area tested but no credit will be awarded.

EXEMPTION FROM ENGLISH COMPOSITION

Students scoring 600 on the SAT Verbal Test of the CEEB English Achievement Test, as well as those who have done consistently well in high school English, are advised to take a CLEP exam for possible exemption from and possible credit for English Composition I and II.

INDEPENDENT STUDY

A student may pursue Independent Study under the supervision of a faculty member. Only 3 semester hours of Independent Study may be attempted in one semester. If a student needs to take more than 3 semester hours of Independent Study, permission must be received from the Undergraduate Dean.

COLLEGE ACADEMIC PROGRAM SHARING: CAPS

CAPS allows students at Fitchburg State College to attend another of the Massachusetts State Colleges. The purpose of the program is to allow students to enroll in up to 30 semester hours of courses in another state college without going through formal registration procedures.

CAPS affords students in the Massachusetts State College System an opportunity to enjoy a broad educational experience with a wide range of faculty, programs, and facilities. The CAPS program is not open to freshmen.

STUDY ABROAD

Through the Center for International Education of the Massachusetts State College System, students at Fitchburg State College may study abroad for a semester or a full academic year in England, France, or Spain at the following institutions:

Roehampston Institute of Higher Education, London, England
Trent Polytechnic, Nottingham, England;
Université de Caen, Normandie, France;
Columbus International College, Seville, Spain.

Interested students should consult with their academic advisors and with the international advisor on campus.

STUDENT TEACHING ABROAD

Student teaching abroad is available to students in the Massachusetts State College System through the Center for International Education. Student teachers interested in enriching their cultural backgrounds may wish to apply to student teach in a fully accredited American-sponsored school overseas. The teaching period is 8 weeks in England, Greece, Italy, Spain, Mexico or Ecuador.

INTERNSHIPS AND PRACTICA

Intensive training program involving work-study or field work. Supervised by professor or staff and on-site work coordinator. (Such activities may involve newspaper work, computer programming, staff work in human services, etc.) Can involve earning from one to fifteen credits in a semester.

Academic credit shall be awarded only for work which would earn credit in an unpaid situation. Students may be permitted by the Department Chair to receive academic credit for work which also earns financial payment.

PRACTICUM IN COMMUNICATIONS/MEDIA

During the Senior year, students, either individually or in teams, are placed with a business, industry, health service, governmental agency, educational institution or public organization to solve comprehensive communication problems. This experience represents the culmination activity in the Communications/Media major and provides each student with an opportu-

nity to apply the knowledge and skills acquired during his/her course of study.

The practicum involves working under the professional supervision of the agency as well as the Department's faculty. Since the Practicum requires commitment for the entire semester, students should expect to spend at least 15 full-time weeks with the agency in which they are interning. In addition, a seminar is held one day and/or evening each month at the College for the purpose of sharing ideas and solving problems.

ENGLISH DEPARTMENT INTERNSHIP

The English Department, through its internship program, offers an opportunity for seniors and second-semester juniors to explore a profession for one full semester of work and credit. English majors can experience a wide range of professional activity in fields such as radio, television, journalism, personnel work, library functions (school, public, or technical), public relations, law, government, human services, and technical publications.

New internship positions are identified each semester. The program has provided an unusually high level of job-entry success for those participating. The internship enables students to apply theoretical knowledge and laboratory-developed skills in an actual professional setting.

FIELD WORK IN THE HUMAN SERVICES

The Human Services program coordinates supervised field work experience with class work. The field work involves working in an agency under professional supervision either 15 hours a week throughout the academic year or 30 hours a week for a full semester. In addition, all students in the class meet to share experiences and learn about other agencies.

Students have been placed in probation offices, mental health facilities, family and children's agencies, hospitals, nursing homes, special needs centers, welfare offices, recreational settings, etc. These experiences should strengthen the position of students when applying for a job, give them a more realistic basis for choosing a career and give their potential employers an opportunity to screen students as job candidates.

INTEGRATED CREATIVE ARTS TEACHER EDUCATION PROGRAM

This is a full-semester experience which includes six weeks of classroom instruction and training (creative work in visual arts, language arts, movement, music, integrating art forms and classroom management). Subsequently, students will be placed in field stations for classroom experiences for the remainder of the semester. These activities will involve assisting teacher-specialists in one or more of the art form areas, and the development and implementation of programs for the specific classroom and its pupils to foster the pupils' personal expression through creation in the arts.

Intermittent seminars will be held one day a week at the College for the purposes of workshop experiences and problem solving. Students are expected to be present in the schools on a full-time basis ordinarily throughout the semester. They will be visited and evaluated by college faculty as well as by cooperating teacher-specialists in the schools.

INTEGRATED PROFESSIONAL PROGRAM

The Integrated Professional Program in the Department of Special Education is a program that moves the preparation of special educators from a college-based program to elementary schools in the community. In this setting, students have theoretical, observational, and participatory experiences. When a concept or technique is introduced academically, the students have the opportunity to observe a demonstration in the classroom and to engage in a teaching practice.

The College faculty provide guidance, immediate feedback and further demonstrations. The cooperating practitioner also participates in this experience with the student. The students raise questions based on their academic and participatory experiences and share ideas, problems and learning with other professionals.

This program prepares teachers to meet the educational/social needs of students who manifest learning/behavior problems in the regular elementary classroom environment.

1. Curriculum and Methodology

   Math
   Science
   Social Studies/Career Education
   Reading
   Language Arts

2. Identification and Diagnosis of Learning Problems
3. Behavior Management

STUDENT TEACHING LEVEL I

The college student spends three weeks, 6 hours a day, in an orientation program on campus for course content; 6 weeks, 3-4 hours per day on site at an elementary school for prepracticum experiences; and 7 weeks at the same elementary school in an elementary teaching experience on a full-day basis.

LEGAL INTERNSHIP

The Legal Internship Program is a one semester 12 credit hour practicum designed to introduce students to basic legal concepts and research tools. A legal intern under faculty and attorney supervision in a law office deals at first hand with the problems of clients. Attention is given to fact-investigation and legal research, preparation of motions, pleadings, trial memoranda and appellate briefs. The internship entails a minimum of 24 hours of work per week in the office and at least six hours of preparation. The offices handle criminal cases and a wide range of civil matters including consumer, administrative, family, welfare, matrimonial and civil rights cases. Enrollment is limited.

INTERNSHIPS IN POLITICAL SCIENCE

Off-campus opportunities, carrying appropriate academic credit, are available in local, state, and federal government offices and with political campaigns. Students gain an insight into the workings of government administration and politics under the supervision of a political science instructor.

Internships are also available in several regional law offices for those persons interested in para-legal work. These internships prepare students for positions in law offices, public administration, and other human service work. Students normally take this legal internship in their junior or senior year. Credit is for either six or twelve semester hours depending upon arrangements with the Social Science Department.

INTERNSHIPS IN PSYCHOLOGY

The Psychology faculty offer an opportunity for the advanced student to perform extensive work in an agency or placement providing psychologically related services. Supervision for the student's work will be provided by both departmental and agency personnel. Students participating in an internship meet weekly as a group to provide maximum exposure to the various placement opportunities available.

INTERNSHIP IN SOCIOLOGY

The advanced sociology student (i.e., junior or senior) may elect the opportunity to gain direct working experience in a setting providing sociologically related services. The student will be supervised by both departmental and agency personnel and may choose an internship experience providing 6 to 12 credits (one academic credit is provided for each 2½ hours of work experience and training). Some of the internship experiences which our sociology students have chosen include: city planning, mental health research, police departments, detoxification centers, prisons, pre-release centers, medical research, family planning, probation, consumer protection research, etc. Prerequisites for the internship include Introduction to Sociology, Social Theory, Basic Skills of Social Research, and Applications of Social Research in the Work Setting. Other courses may also be recommended by the sociology faculty for certain internships. Approval by the sociology advisor is required for any student electing to do an internship.

ACADEMIC SERVICES

LIBRARY HOURS

Monday thru Thursday

8:00 a.m.-11:00 p.m.

Friday

8:00 a.m.-5:00 p.m.

Saturday

10:00 a.m.-5:00 p.m.

Sunday

1:00 p.m.-10:00 p.m.

Vacation, exam period, summer schedule will be posted

THE COLLEGE LIBRARY

The Fitchburg State College Library, located in the James J. Hammond Building, provides study table, study carrel, and lounge seating on three levels for 1,350 students. It is a comprehensive information center where source materials are available in a variety of formats. The holdings, which comprise curriculum-related subjects and general student-interest materials, include a circulating book collection of 165,000 volumes; 2,286 periodical titles in microfilm and print form; abstract and indexing services; the Resources in Education Collection (ERIC), a comprehensive education library retrieval system on Microfiche; and a large pamphlet file. The Fitchburg State College Library also holds a 9,000 volume reference collection; card catalog access to audio-visual information in 10 formats; a children's literature collection; and a record collection of classical, folk, jazz, popular music, and the spoken word for which stereo headsets may be obtained at the Circulation Desk for the listening stations located throughout the library.

LEARNING RESOURCES CENTER

The Learning Resources Center (LRC) is located on the third floor of the Hammond Building. The College recognizes that the learning conditions required for each student may be different due to the uniqueness of individual learning styles. Thus, the Learning Resources Center attempts to provide conditions which allow hum n and non-human resources to develop the maximum capabilities of each learner.

The LRC strives to:

1. Acquire, store, and distribute instructional software including films, computer programs, filmstrips, audio tapes, video tapes, kits and other higher education curriculum materials.
2. Design learning spaces, appropriate to independent study, small group interaction, human and non-human tutoring, and large group activities.
3. Provide assistance to those desiring to strengthen their reading, writing, math, speaking and study skills.
4. Create a research and development capability enabling faculty and students to evaluate instructional strategies and materials, to sharpen teaching behavior, to investigate the teaching/learning process and to develop observation skills.
5. Provide for the needs and demands of the undergraduate skills centers: Housed in the LRC are the Reading Center, Writing Center, Mathematics Center and the Study Skills Center.

The College maintains a Special Skills Center where help is readily available for students who have difficulties in reading skills, writing, and computational areas. The special skills lab provides individualized assistance to students with needs ranging from mild to more severe exceptionalities. Special learning programs can be devised in some areas and this service is open without cost to all students in the College.

It is the policy of the Board of Trustees that students admitted to State Colleges who suffer serious deficiencies in reading, writing and mathematics be required as a condition of attendance to avail themselves of remedial courses and other help as prescribed.

The Center is located in the Learning Resource Center of the Library and is open from 8:30 a.m. to 4:30 p.m. Monday through Friday.

READING CENTER

Programs offered at the Reading Center are designed to meet the individual needs of all students. Enrichment programs are available for slow readers with good comprehension who want to increase their speeds. Developmental programs, concentrating on comprehension skills, help students understand what they read. Additionally, all students are taught how to adjust their rates of reading to meet their particular purposes. Students may enroll in reading courses any time and select hours convenient to them. One credit is earned upon completion of an individually designed reading program. There is no charge for these programs.

WRITING SKILLS CENTER

The English Department operates a *Writing Skills Center* where students may get help at any time for their writing problems. Students who have problems in English Composition classes are referred to the Center for additional help. Any instructor in the college may refer a student to the Center, and any student who desires assistance may voluntarily apply to the Center. A wide variety of programs and instructional materials are offered to students by the English Department's Writing Skills Center.

ADVISING CENTER

In addition to the above, the College provides an Advising Center which is open four days a week during regular college hours for academic advising and counseling of students, with particular emphasis on students who are undecided about a major, handicapped students, students on probation and students in the bottom 10 percent of their class standings.

Although the Center does not provide advice for specific majors since this role is best filled by the individual departments, the Center will assist students who feel they are not receiving the help they need or who need assistance in emergency situations when departmental services are not available.

COLLEGE COMPUTER CENTER

The Fitchburg State College Computer Center is a service department of the College. Facilities are provided to service the administrative, educational and research needs of the campus. The principal unit of equipment in the Center at the present time is a Control Data Computer CDC System 18 Batch terminal which is connected to a Boston-based CDC Cyber-170 computer. There are 24 interactive terminals that are primarily for academic use by students and faculty. The terminals are of two types: CRT (Cathode Ray Terminals), terminals with no hard copy, and Printer types, those that do have hard copy for reference. These terminals are located in a pleasant setting on the third floor of the library.

Computer usage ranges from the computation of assigned classroom problems to the support of special projects of administrators and faculty. Many students begin to use the computer early in their programs of study and some continue to do so into graduate work. Opportunities to pursue courses of study oriented toward computer science are available and are described elsewhere in this catalog.

In addition to the central computing facility, the Computer Science Department has available PDP-11 and PDP-8 mini-computers for hands-on use and numerous micro-computers for laboratory use. These systems allow the student to work on design experiments which would be impossible or impractical on the large central computers.

CENTER FOR STUDIES IN HUMAN DEVELOPMENT

The Center for Studies in Human Development is an interdisciplinary environment in which students and faculty interested in the study of human development can cooperate in order to initiate research, develop programs and teaching materials, and share knowledge. The departments of Behavioral Sciences, ECES Education, Special Education, and Communication/Media participate in the planning and advising functions of the Center.

Systematic investigations of issues in human development, seminars, workshops, mini-courses, and informal discussions which are directed by the Center staff involve beginning and advanced students, faculty, community professionals, and other area adults. The Center, located in McKay Campus School, provides a base for the above activities, including the Practicum in Developmental Psychology (PY482), and is a repository for audio-visual materials concerned with human development.

DIVISION OF GRADUATE AND CONTINUING EDUCATION

The Division of Graduate and Continuing Education offers graduate and undergraduate degree programs in keeping with its prime purpose of providing opportunities for professional and scholarly advancement for the people of central New England.

The Division offers a Master of Education Degree, which permits specialization in eight vocational and educational areas: Special Education, Elementary Education, Secondary Education, Occupational Education, Creative Arts, Science Education, Counseling, and Educational Leadership and Management.

The Division also offers the Master of Arts in Teaching (M.A.T.) degree in English and a certificate of advanced graduate study in Individualized Instruction and in Career/Occupational Education. A Master of Science degree in Computer Science is offered in cooperation with the Raytheon Company. A Master of Communications degree is the newest baccalaureate degree.

Graduate Courses are also open to anyone with a bachelor's degree who is not already matriculated in a degree program. In-service graduate courses are available by special request from businesses, school districts, social agencies or other employers.

The Continuing Education Division offers several programs of study leading to the undergraduate degree. Currently, within this program are opportunities to specialize or "major" in various different areas. These specializations include the following: Bachelor of Science in Business Administration with a specialization in Accounting or Management, Bachelor of Science in Education, Vocational; Bachelor of Science in Nursing for Registered Nurses and Bachelor of Science in Industrial Science. Courses which are part of these degree specializations are offered in both regular semesters and the summer sessions. The summer session offers morning and evening classes, full library services, and opportunities for residence hall living.

Inquiries concerning admission procedures in graduate or undergraduate programs may be addressed to the Dean of Graduate and Continuing Education.

STUDENT LIFE

STUDENT GOVERNMENT ASSOCIATION

The purpose of the Student Government Association (S.G.A.) as set forth in its constitution is:

". . . to encourage responsibility and cooperation in democratic self government; to form an official body for expressing the judgments of students and fostering the activities and matters of general student interest; to promote full understanding and cooperation among students, faculty, and administration in order to further the welfare of the college."

All students enrolled as full-time undergraduates are members of the Student Government Association, by virtue of having paid the "Activity Fee". The governing body of S.G.A. is the S.G.A. Council, which is composed of an Executive Board, a Commuters' Board, dormitory presidents and vice-presidents, and the presidents, vice-presidents, and four representatives from each of the classes. Elections are held every spring and freshman elections are held in the Fall.

The S.G.A. is the official voice of the students and participates in campus-wide committees, state and national student organizations, in addition to participation in its own standing and ad-hoc committees. Participation at any level is welcome and encouraged. The S.G.A. also offers a number of services for its members, including programming, copying, and legal advice.

STUDENT RIGHTS AND RESPONSIBILITIES

The philosophy behind the Student Judicial System at Fitchburg State College is that student conduct is a personal responsibility. The Student Judicial Code was developed as a cooperative effort among students, faculty, and staff in order to provide a comprehensive listing of College regulations and sanctions and to establish fair processes for dealing with instances of student misconduct. The central focus of the Judicial System is the Student Judicial Board, which is administered by the Student Government Association in conjunction with the Office of Student Life.

College regulations apply on campus and at college-sponsored affairs wherever they may take place. They include federal, state, and local laws as well as rules and regulations conducive to the attainment of the goals of the college. The following are examples of the areas covered by the regulations, although by no means an exhaustive list: academic honesty; false representation; tampering with college records; theft; vandalism or intentional destruction of college property; harassment; physical assaults; possession or consumption of alcoholic beverages or drugs in violation of college guidelines; false alarms; and the possession or use of firearms.

The complete text of the Student Judicial Code is available in the *Handbook of Rules and Regulations* or from the Student Life or Student Government Association Offices.

ATHLETICS

The Athletic Association of Fitchburg State College, supported by the athletic fee, offers each student an opportunity to participate in activities at the intramural or varsity level. The College fields varsity intercollegiate teams in Cross Country, Track and Field, Tennis, Indoor Track, Soccer, Baseball, Basketball, Ice Hockey and a club football team. Women compete on the intercollegiate level in Field Hockey, Tennis, Volleyball, Basketball, Track and Field, Cross Country, Indoor Track and Softball. Fitchburg State College is a member of the Massachusetts State College Athletic Conference, the National Collegiate Athletic Association, Eastern Collegiate Athletic Association, Association Intercollegiate Athletics for Women, Eastern Association Intercollegiate Athletics for Women, Massachusetts Association Intercollegiate Athletics for Women, United States Women's Track Association, Northeast Field Hockey Association, United States Field Hockey Association, the Northeast Women's Intercollegiate Hockey Association, and Amateur Athletic Union, which entitles successful Fitchburg teams to participate in tournament and championship play.

An active intramural program offers the opportunity for team and individual competition to all students in baseball, softball, volleyball, basketball, bowling, tennis tournament, gym hockey and stick polo. Coed intramural programs allow participation in volleyball, bowling, tennis tournament as well as recreational activities such as: ice and roller skating, splash parties, open gym and weight room and other activities suggested to and by the Women's Athletic Association, the Men's Intramural Board and the Athletic Council. Facilities for the athletic program include a brand new 400 meter Chem-Turf track and field complex, a soccer field, tennis courts, outdoor basketball courts, intramural fields, gymnasium and weight room for training. The McKay School Gymnasium is also available for intramural activities, and construction has just been completed on a new baseball diamond and Field Hockey field.

CAMPUS CENTER

The Campus Center is designed, organized and administered to meet the maximum co-curricular needs of the College community as well as to foster and promote the philosophy of community spirit. Its goals are to maximize the opportunities for human development, provide educational, social, cultural and recreational experiences for the College community, and to provide convenient, economical and satisfactory services to the maximum number of the College community.

The facilities include: an information center, art gallery, recreation room, bookstore, craft center, student offices, meeting rooms, post office, vending services, cafeteria, pub and office of the Alumni Association. All facilities are specially designed for handicapped access. Some programs and services generated from Campus Center funds are: a weekly calendar of campus activities, special events, mini courses from crafts to disco, demonstrations, recreation tournaments, films, lecturers, video taped entertainment, travel, performing arts, free use of outdoor recreation equipment, and visual art exhibitions.

The Campus Center Resource Office (CCRO) is another service of the Campus Center. Its student professional staff advise and assist student organizations with programming ideas and program implementation. The office maintains complete files and information about the multitude of program opportunities available to students and student orga-

nizations. Some of the programs CCRO has presented include leadership training, contract assistance for programs, workshops about leading volunteer groups, as well as helping with the production of films, lectures, dances, concerts, Fine Arts Week, and special events.

CAREER PLANNING AND PLACEMENT CENTER

The Career Center provides a variety of services for students in educational and career planning. The staff works with students to increase their self-understanding and effectiveness in making career decisions. Services of the Center include maintenance of placement credentials; advice in the preparation of resumes and letters of introduction; preparation and distribution of job information to registrants; a placement bulletin board for students and alumni; on-campus interviews between employers and students; and career planning assistance. The Center also provides counseling, guidance, and other assistance important to career planning, as well as remedial and developmental work in reading and study skills.

A job bank is maintained in which full-time, part-time, and summer job vacancies are listed to assist students and alumni in their job search. Local, state, national, and overseas openings are contained in the job bank.

Testing services and consultation are also available to students in the Career Planning and Placement Center. A vocational development test battery and a library of career information are on hand for students who wish to explore their career interests, personality and values. An extensive collection of standardized tests is also housed here. Staff members are available to assist students and other members of the College community in selecting and utilizing tests in research, diagnosis, and evaluation. Several national programs of standardized testing are administered through the College: Graduate Record Examinations; College Level Examination Program (CLEP); and Miller Analogies Test. The Center is open from 8:30 a.m. to 5:00 p.m. weekdays, and is located on the top floor of the Edgerly Building on campus. Students may make appointments by visiting the Center or by telephoning 345-2151, Extension 130.

COLLEGE OFFICER RECRUITMENT PROGRAM—(CORP)

The Massachusetts State College System and the Massachusetts National Guard have joined in a cooperative venture (CORP), which links both organizations in an effort to enable students to earn commissions as officers before graduation. As part of this program, National Guard officers conduct free Career Testing and Awareness Workshops on state college campuses. Students can attend these workshops with no obligation, no cost, and acquire valuable job prospecting skills. These workshops also inform students of the CORP benefits such as:

—A commission as a Second Lieutenant in the National Guard before graduation from College

—Free tuition at a state college as part of the benefits that all members of the Massachusetts National Guard automatically receive

—A monthly paycheck for week-end and summer National Guard training

—An opportunity to gain leadership and management skills by attending the Massachusetts Military Academy at Reading. This training is conducted in Massachusetts

without interrupting the student's college program.

Students who are interested in becoming part of CORP will first have to pass a battery of physical and mental ability tests which are standard criteria for officer candidacy throughout the armed forces. For information on Career Testing and Awareness Workshops as well as CORP enrollment, contact the Student Affairs Office or the National Guard.

FOOD SERVICE

daka Food Service provides a variety of food service operations at Fitchburg State College, including the resident program in the Holmes Dining Commons, the Campus Center Cafeteria, and a vending program. The resident program offers a choice of fifteen (15) or twenty-one (21) meals per week which are purchased on a per semester basis and includes special events such as holiday meals. daka Food Service handles all functions on campus, everything from "Coffee-ands" to a full course banquet.

The Campus Center Cafeteria is open to the College community and serves daily from 7:30 A.M. to 2:00 P.M. and 5:00 P.M. to 7:00 P.M. except Thursday and Friday when it is open from 6:00 P.M. to 11:00 P.M. The cafeteria also has a Call In/Take Out service.

FOREIGN STUDENTS

Foreign students are welcomed to enroll at Fitchburg State College, and students from Nigeria, Iran, Thailand, Japan, Indonesia and Sweden have done so. Foreign students who do not possess a permanent visa are required to complete the following process before an admissions decision is granted by Fitchburg State College. Any student with a permanent visa is considered in the same manner as a citizen of the United States and will be processed as such. All applications for admission from foreign students who do not possess a permanent visa must be postmarked by January 1st for entrance the following September. No foreign applicants are eligible for admission in the January entrance period.

The following steps must be followed by a foreign student when making application for admission to Fitchburg State College.

1. Provide an official statement from a bank showing that sufficient funds will be available for one academic year.

2. Academic transcripts or grades must be provided to the College.

3. Freshman applicants should submit Scholastic Aptitude Test scores (S.A.T.'s) of the College Entrance Examination Board and the Student Descriptive Questionnaire form (SDQ).

4. Provide evidence of scores from the Test of English as a Foreign Language (TOEFL) where the student's first language is not English.

All documents should be sent to the Admissions Office. All supporting credentials must be received by the Admissions Office no later than April 15th for entrance the following September. Documents not in English must be accompanied by an attested English translation. For further information, please contact the Admissions Office.

HANDICAPPED/DISABLED STUDENTS

The Student Life Office provides ongoing assistance to disabled students in accessing college programs and services. Disabled students are expected to move like all students through the college offices and classrooms, but from time to time their particular disability may necessitate additional information and accommodation.

Handicapped students are strongly encouraged to participate in a pre-orientation interview to facilitate their entry experience. Arrangements for this interview may be made through the Student Life Office.

HEALTH SERVICES

The goal of the student health services at Fitchburg State College is to provide equitable, accessible, quality health care to the student community at a reasonable cost.

The yearly health services fee is utilized in programs of prevention, education and referral, as well as in diagnosis and treatment of illnesses. Such services include blood pressure screening, workshops on dieting, self breast examination and CPR, utilizing some innovative techniques and procedures in these areas.

Health care is provided through the cooperative and combined efforts of a physician, a nurse practitioner, and a medical assistant.

The Health Service provides treatment for episodic illnesses or injury, with referral to appropriate local hospitals when necessary. Arrangements can be made through the Health Service for certain types of vaccinations.

The Health Service is open from 8:00 a.m.-4:30 p.m., Monday through Friday, and is located in Miller Hall.

HOUSING

I. Residence Halls

Three campus residence halls and an apartment complex provide housing for more than eleven hundred students while Fitchburg State College is in session. All residence halls are conveniently located within easy walking distance of classrooms, offices, and other centers of student activity on the campus. Holmes Dining Commons is situated adjacent to the residence halls, and provides meals for all residence hall students as well as many students who live off campus. Students may take their meals on either a five-day or seven-day plan.

Aubuchon Hall is a highrise with ten floors, each designed for forty people in double rooms. Study rooms and recreational facilities are provided on the first floor. Russell Towers, which opened in the fall of 1971, has thirty-six suites housing eleven or twelve people, arranged with a dozen suites in each of three towers. "Family Style" living is enhanced through the inclusion of a living room and kitchenette in each suite. Herlihy Hall, which was extensively renovated in 1977, is the smallest residence with only one hundred forty-two students on three floors. The town-house style apartment complex provides an additional life style choice for students.

Accommodations for handicapped students are located in the town-house apartments, as well as in the Aubuchon Hall and Russell Towers.

Most residence hall rooms are double rooms; the number of single rooms available is very limited. All rooms are provided with basic furnishings such as bed, dresser, desk, and chair. Students must provide their own linen, towels, face cloths, and mattress pad or cover.

The campus residences are much more than places to sleep. These living centers form a major focal point of campus activity, largely through the efforts of the hall councils and the residence staff. The hall council in each building is comprised of elected representatives of the residents and works to plan activities and promote student interests. All four residence halls also have student and full-time professional residence staff who work to assist students with their personal and social needs.

Residence hall space is extremely limited. Students desiring housing are advised to apply for admission with housing well in advance of the deadline for admission to the college. Questions concerning campus housing should be directed to the Housing Office, Aubuchon Hall.

II. Off-Campus Housing

Over two-thirds of the students at Fitchburg State College do not live in the residence halls. A large number live in apartments and rooming-houses in the campus area. The off-campus housing coordinator maintains a listing of available off-campus housing and offers assistance to students who wish to share apartments with other students. The off-campus housing office is located in Aubuchon Hall.

The campus area is convenient to supermarkets, laundry facilities, and shopping. Many students find the off-campus life-style attractive because it affords them the opportunity for increased independence in managing their day-to-day affairs. This "real world" experience helps to prepare them for their post-college life. Off-campus students participate in all campus activities and have their own governing body, the Commuters' Board.

Students who wish off-campus housing assistance or information should contact the Housing Office or the off-campus housing coordinator.

MUSICAL ACTIVITIES

Many opportunities exist for musical performance at Fitchburg State College. The College has a fine 60-piece Concert Band that performs music of all types, from transcriptions of classics to contemporary sounds. The Jazz-Rock Ensemble features big band jazz, rock and experimental music for stage bands. Instrumentalists may also perform in the College Brass Ensemble and Woodwind Ensemble, which offer more challenging music for these instruments. A Recorder Ensemble also specializes in the performance of early music.

Fitchburg State College has a choir that sings a wide variety of mixed-voice choral music and a Women's Chorus that presents music using only women's voices.

The performing organizations at Fitchburg State College have performed concerts in most of the northeastern United States and eastern Canada as well as in five European countries. Performers of all levels are welcome to participate in these exciting cultural and social organizations.

ORIENTATION

The goals of orientation at Fitchburg State College are to provide new students with sufficient and complete academic information so that they can make intelligent course selections; to acquaint them with the facilities, programs, and activities at the College; to answer preliminary questions about any and all facets of campus life; and to begin providing the students with necessary skills in academic, social, and personal areas to ensure a successful beginning to their college experience. The central focus of the program is a 2-day summer program for freshmen and transfer students; supplemented by a one-day program in early September for those unable to come to the summer program. An orientation fee is assessed all students.

Orientation consists of a series of activities designed to give the new students a broad range of information and to introduce them to campus life. Each student receives an information packet containing local maps, answers to frequently-asked questions, and information on campus activities. The stu-

dents receive extensive campus tours in small groups, which afford them the opportunity to visit offices while in operation and to ask questions freely. Similarly, the students are given frequent opportunities to meet in small groups throughout the program to ask questions and share information and experiences. Representatives of major campus activities meet with students to explain their organizations and recruit members. Special-interest group meetings are held on such topics as study skills, adjustment to college, special needs of transfer students, and housing. Social, recreational, and cultural activities comprise evening entertainment. The students take their meals in Holmes Dining Commons and spend the night in a college residence hall, giving them an experience in on-campus living. Academic activities during orientation are also numerous. Mathematics and reading skills aptitude tests are administered to each student prior to academic advisement and registration to assist in proper course selection. Each student attends an academic advising session with faculty from his or her department prior to the registration session.

STUDENT ACTIVITIES AND ORGANIZATIONS

Student organizations at Fitchburg State College provide the community with a wide variety of activities and programming which are designed to help the students round out their college experience. A wide variety of student organizations afford students opportunities to find activities that meet their interests and aptitudes.

The student organization which provides most of the activities for the College is the Programs Committee. Through its various subcommittees, it provides hundreds of popular and well-attended activities each year including films, lectures, concerts, seminars, coffeehouses, pub entertainment and social activities.

There are also many types of student groups: pre-professional academic, honorary, religious, social, athletic, special interest, musical, and service groups.

A partial listing of special interest and service organizations includes the Accounting Society, Society for the Advancement of Management, Choral Arts Association, Council for Exceptional Children, Cultural Society of Minority Students, Early Childhood Club, Elementary Education Club, Fitchburg Industrial Technology Association, Forensics Club, Geography Club, Medical Technology Club, Nursing Students Association Club, Outing Club, and the Special Education Club.

The pre-professional and academic organizations and honorary groups include the Biology Club, Chemistry Association, Early Childhood Club, Elementary Education Club, Geography Club, Human Services Club, Fitchburg Industrial Arts Association, Epsilon Pi Tau, Medical Technology Club, Nursing Students Association, Political Science Club, Psychology Club, ROTC, Sociology Club, Special Education Club, Epsilon Beta Chapter, Sigma Theta Tau, and the Mathematical Society.

The musical organizations are the FSC Band, the Choir, the Women's Chorus, the College Brass Ensemble, Woodwind Ensemble, and the Recorder Ensemble.

Some of the social, religious, and athletic groups are the Adelphian Society, Alpha Phi Omega, Esoteric Society, Fenwick Society, Gamma Sigma Sigma, Gavaleer Society, Mohawk Club, Neasylon Society, Phi Alpha Theta Xi-Upsilon, Philodemic Society, Intervarsity Christian Fellowship, Newman

Association, the Women's Coop, and the Women's Athletic Association.

Additionally, several student publications, including *THE RHETORIC,* the student newspaper, *SAXIFRAGE,* the College yearbook, and *Runehaven,* the College literary magazine, offer a rich and varied media for student expression.

The Athletic Department administers a full schedule of intramural and intercollegiate athletic teams of men and women. The College enjoys student organized traditional events throughout the year, including Winter Carnival and Fine Arts Week.

The College encourages participation in student organizations. Through these laboratories for expression, students can develop lifetime skills for achieving personal goals. It is hoped that by pursuing these co-curricular programs and activities that students can round out their campus experiences.

RELIGIOUS LIFE

Fitchburg State College students may participate in the services of the many churches, religious congregations and synagogues which are within walking distance of the campus as well as the Newman Center Student Parish which is adjacent to the College. Inter-Varsity Christian Fellowship at Fitchburg State College is a charter member of Fellowship which is represented on college and university campuses throughout the world. Christian Life Community also contributes to religious life at the College.

The Newman Center, although Roman Catholic in origin, provides for the needs of Catholics, other Christians, Jews and Buddhists. In addition to a chapel, the building houses offices for chaplains, a study lounge, and a recreation area with kitchen facilities. The original Center which is located next door provides a chaplain's residence and meeting rooms. The Center provides religious services, educational and cultural programs, and a meeting place for College groups of all kinds.

COURSES AND PROGRAMS IN THE COLLEGE

Explanation of Course Numbers

100-199 Lower level courses.

200-299 Middle level courses.

300-399 Upper level departmental electives.

400-499 Advanced Courses.

Arabic numbers at end of course descriptions represent semester hours and clock hours in that order.

Example

AR 100 Survey of Art Forms I 3-3

The 3-3 represents 3 semester hours, 3 clock hours. The term semester hours is used to designate one class or equivalent laboratory unit meeting.

ART

See Humanities for Faculty Listing.
ASSOCIATE PROFESSORS: Elmer Arsenault, Robert Fritz, Donna Bechis

AR 100 Survey of Art Forms 1 3-3
A study of architecture, sculpture and painting from ancient Egyptian times to the Renaissance in Europe. Emphasis is placed on understanding style in these various art forms.

AR 120 Survey of Art Forms II 3-3
A survey of significant styles in the architecture and painting of the Western World from the year 1800 to the present with emphasis upon the special nature of the visual experience. Assigned readings, lectures and visuals.

AR 140 Drawing 3-6
A studio course which introduces students to the practice of drawing with emphasis upon the description of form through means of line, shade and perspective. Investigation of a variety of media as well as basic stylistic alternatives is encouraged.

AR 150 Life Drawing 3-6
The basic problems in form and anatomy are studied while drawing from the nude and costumed model. Various techniques and tools are explored including a study of some of the great masters' drawings.

AR 170 Design 3-3
The basic elements of design will be applied to the creation of two and three dimensional form. Studio work will explore the characteristics and effects of black and white and color, through the use of mixed media.

AR 180 American Art **3-3**
A survey of significant stylistic developments in architecture painting and the decorative arts from the earliest colonial times to the present. Assigned readings, lecture, discussion and visuals.

AR 190 Renaissance Painting **3-3**
The development of painting in Italy from 1250 to 1550, the age of Michelangelo. The Northern Europe Renaissance from 1400 to 1700 is also surveyed culminating in the Baroque period of Rembrandt.

AR 200 Introductory Painting **3-6**
A study of the basic problems of form, color, and texture as understood in oil paintings. Consideration is also given to the nature and use of the oil painting materials themselves.

AR 210 Contemporary Art **3-3**
Course will consist of active student participation in slide discussions, studio work, and museum and gallery trips. Subject matter will be based on contemporary trends in art dating from the 1960's to the present.

***AR 220 Sculpture** **3-6**
Exploration and experimentation with various mediums in order to create 3 dimensional form. The student will incorporate the basic elements of design into the building of sculpture and gain an understanding of how to conceive, develop, and build form. Exploration of materials will be encouraged, as well as mastering basic techniques and media for form building.

***AR 240 Advanced Sculpture** **3-6**
This studio course is a continuation of an expansion upon the basic principles of sculpture, on a more advanced level. Sculpture projects will be geared toward the individual interests and requirements of the advanced student. **AR 220 is a prerequisite.**

***AR 250 Advanced Painting** **3-6**
Accent is placed on the painting of the portrait. Anatomical and formal construction is studied and consideration is given to painterly values of color and texture.

***AR 270 Pictorial Design** **3-6**
This course continues where Advanced Painting ends. Emphasis is given to figure painting, both costumed and nude model. The total figure is studied anatomically and in terms of basic forms. Continued study of color and texture problems are pursued.

AR 280 Art in Elementary Education **3-3**
Practice of art as well as observation and discussion of the philosophy of art education in the elementary grades.

***AR 300 Museum Internship** **3-6**
Offered jointly with the Fitchburg Art Museum. Emphasis on museum management and particularly the arrangement of exhibitions. Only by permission of advising art faculty.

AR 490 Independent Study in Art **3 S.H.**
For selected students, upon approval of both department head and advising instructor.

BEHAVIORAL SCIENCE DEPARTMENT

CHAIRMAN: John Dufault
PROFESSORS: Grainger Browning, Harry Crowley, John Dufault, E. Arthur Garvin, Paul Girling, Donald Isaac, Harold Melvin
ASSOCIATE PROFESSORS: Alan Bernstein, G. Jefferson Breen, Mary Ann Hanley, A. Orin Leonard, David Maloney, Richard Spencer, Charles Streff, Mabel Sgan
ASSISTANT PROFESSORS: David Bakken, Carol Gay, Anita Hotchkiss, Richard Kruse, Patricia Macrides, Donna Lee McCabe, Cynthia Tower
INSTRUCTOR: Mary King

***Courses marked by an asterisk are not offered on a regular basis.**

The Behavioral Sciences Department offers major degree programs in Human Services, Psychology and Sociology.

Human Services

The Behavioral Science Department offers a Bachelor of Science in Human Services. The program requires 48 semester hours and is divided into three parts: core requirements, Behavioral Sciences courses, and related electives from other departments. The core requirements include Introduction to Human Services (HS 110), Abnormal Psychology (PY 335), Interviewing Techniques (HS 475), Methods of Case Reporting and Analysis (HS 476). The additional Behavioral Sciences courses and the related electives are chosen in consultation with the student's advisor. For a more complete description of the major and for the listing of Human Services courses, see HUMAN SERVICES.

Psychology

The Behavioral Science Department offers a Bachelor of Science or a Bachelor of Arts degree in Psychology. For both degrees the program requires 37 semester hours and has a core of required courses and distribution requirements from four areas. Core courses consist of General Psychology (PY 110), Introduction to Research Methods (PY 114), Psychological Statistics (PY 340), Experimental Psychology (PY 441) and History and Systems of Psychology (PY 448). Under area requirements students must take at least one course from each of four areas: Developmental, Adaptive, Basic Processes and Applied Psychology. Pre-professional experience in a psychology practicum or internship is strongly recommended. For students who desire a Bachelor of Arts degree proficiency in a foreign language at the second year level is required. For a more complete description of the program and for a listing of courses, see PSYCHOLOGY.

Sociology

The Behavioral Science Department offers a Bachelor of Science or a Bachelor of Arts degree in Sociology. For both degrees General Psychology (PY 110) and Introduction to Sociology (SO 110) are required. Social Research I (SO 213) and Social Research II (SO 214) and Social Theory (SO 216) are strongly recommended. Other courses to make up the required 36 semester hours for the major are chosen by the student and his/her advisor. The Bachelor of Arts degree in Sociology requires proficiency in a foreign language at the second year level. For a more complete description of the Sociology program and for a listing of the courses see SOCIOLOGY.

The Department offers a well-equipped laboratory for Experimental Psychology. It also holds the major responsibility for the operation of the Center of Studies in Human Development. (For a more complete description, see Academic Services.)

BIOLOGY

CHAIRMAN: Stanley Dick
PROFESSORS: Neal Anderson, Stanley Dick, Rose Marie Neunherz, Donald Schmidt, Robert Zottoli
ASSOCIATE PROFESSORS: Stanley Krane, Alice O'Malley, George Bond
ASSISTANT PROFESSOR: George Babich
INSTRUCTOR: Howard Thomas

The Bachelor of Arts and Bachelor of Science in Biology must include BI 200, 210, 230, 280, 400, 430 and at least twelve additional semester hours of biology electives. Two mathematics courses at or above the level of MA 120; CH 110, 120, 200, 210 or 240, 250; and PH 110 and 120 are also required courses. The Bachelor of Arts degree requires foreign language proficiency at the second year college level.

A Bachelor of Science in Education, Secondary, in Biology must include BI 200, 210, 230, 280, 400, 430, 488 and at least twelve additional semester hours in biology electives. The program also includes two mathematics courses at or above the level of MA 120; CH 110, 120, 200, 210; PH 110, 120; PY 110, 230, 275; ED 361, 387; CM 020.

The Bachelor of Science in Biology/ Environmental Science includes all requirements of the Bachelor of Science in Biology. Additional requirements are six semester hours of earth science or geology, a course in computer science, ES 100, ES 270, and three semester hours of electives in Environmental Science. The major recommends that EC 104 Environmental Law, and Urban Planning be used to fulfill the social science requirement and that PL 100, EN 440, and a photography or drawing course be used to fulfill the humanities requirements in General Education.

Since not all courses are offered in any one year, the student interested in Biology/ Environmental Science is urged to consult closely with his/her advisor to design in advance a suitable selection and sequence of both required and elective courses.

BI 100 Introduction to Life Science I 3-4
The course focuses on the history, philosophy and content of biology as a science. Laboratory work includes experiences that emphasize problem solving by the student. Primarily for the non-major. 2hrs. lecture, one 2-hr. lab per week. Offered: Fall semester.

BI 110 Introduction to Life Science II 3-4
Continuation of BI 100. 2 hrs. lecture, one 2-hr. lab per week. Offered: Spring semester.

BI 120 Anatomy and Physiology I 3-4
Structure and function of the human organism on the cellular, tissue, organ, and system levels. Cellular metabolism, histology and the following systems: skeletal, muscular, and nervous (including the special senses). The laboratory emphasizes both physiology and the dissection of preserved mammalian specimens. 2 hrs. lecture, 2 hrs. lab per week. Offered: Fall semester. (Not open to students who have completed BI 420)

***Courses marked by an asterisk are not offered on a regular basis.**

BI 130 Anatomy and Physiology II 3-4
A continuation of BI 120. The following systems are covered: circulatory, breathing, digestive, excretory, endocrine and reproductive. 2 hrs. lecture, 2 hrs. lab per week. Offered: Spring semester. **Prerequisite: BI 120.**

***BI 150 Seminar in Modern Biology 1-1**
Discussion of current topics in basic and applied biological research based on readings of original scientific reports. Each student is expected to prepare one brief presentation on a topic of his or her choice. Strongly recommended for all freshman or sophomore biology majors.

BI 181 Science in Elementary Education 3-4
Content, methods, and resources suggested by curriculum groups are examined and experiences developed that exemplify current thinking in science education. Recommended only for majors in Education.

BI 200 General Zoology 3-4
A course designed to acquaint students with basic zoological concepts. Emphasis will be placed on such topics as: scientific method; cell and structure and function, structure and function of tissues, organs and organ systems, evolution and a general survey of the principle phyla of the animal kingdom. 4 hrs. lecture/laboratory/field trips per week.

BI 210 General Botany 3-4
The structure, physiology and life cycles of the algae, fungi, bryophytes, ferns, gymnosperms, and angiosperms. Relationship of plant biology to agriculture and medicine are also discussed. Laboratory involves study of life and preserved plant materials, simple physiological experiments and plant growth project. 2 hrs. lecture, 2 hrs. lab per week.

BI 220 Plant Physiology 3-4
Individually paced integration of plant structure and function emphasizing physiology of the integrated plant: water relations; transpiration and translocation, mineral nutrition, photosynthesis, respiration, growth hormones, differentiation and morphogenesis. 2 hrs. of conference, 2 hrs. lab per week, plus additional hours. Offered: Fall semester (alternate years). **Prerequisites: BI 210 and General Chemistry.**

BI 230 Introductory Ecology 3-4
Survey of major ecological concepts and methodology as a basis for further investigations of the dynamic relationship between organisms and their environment. Field and laboratory work emphasize problem identification, formulation of hypothesis, data collection, and analysis and interpretation of results in terms of their biological implications. 2 hrs. lecture, 2 hrs. lab/field trips per week. Offered: Fall semester. **Prerequisite: BI 100 or 200 or 210 or permission of instructor.**

***BI 250 Histology 3-4**
Systematic survey of the basic animal cell and tissue types, followed by in depth microscopic study of the major organ systems. Practical work includes histological microtechnique on normal and pathological specimens. Lecture/lab/demonstration, plus some additional time. **Prerequisite: BI 200 or BI 420 or BI 120/130.**

BI 255 Social Biology 3-3
An exploration of the biological and cultural evolution of man and how that evolution has developed or caused specific societal problems. A study of the biological explanations for and possible solutions of these problems. 3 hrs. of discussion per week, 1 hr. independent study. **Prerequisite: 6 semester hours Introductory Biology or equivalent.**

BI 260 Conservation and Human Ecology 3-3
An introductory exposure to applied ecology, primarily for non-majors, intended to develop a disciplined sensitivity to human environmental interactions. Individual projects will require the identification of specific conservation problems in local communities, their sources, and proposals of practical means for their solution. 3 hrs. lecture/lab per week. Offered: Fall semester.

BI 270 Survey of Micro-organisms 3-4
Introduction to the biology of major groups of microorganisms: bacteria, viruses, protozoa and fungi, their role in nature and their relationship to man as agents of infectious diseases. Laboratory emphasizes principles and practices of aseptic techniques and diagnostic identification and culture of disease entities. 2 hrs. lecture, 2 hrs. lab per week, plus some additional time. Offered: Spring semester. **Prerequisites: BI 130 and General Chemistry or permission of Instructor.**

***Courses marked by an asterisk are not offered on a regular basis.**

BI 280 Genetics 3-4
Basic principles of biological information processing: Mendelian inheritance; sex determination; chromosome cytogenetics; linkage, recombination and genetic mapping; mutagenesis; molecular genetics and gene-enzyme relationships; population genetics and quantitative inheritance. Laboratory work includes study of mutational effects and analysis of crosses in maize, drosophila, bacteria, viruses and man. 2 hrs. lecture, 2 hrs. lab per week, plus some independent project work. **Prerequisite: BI 200 or BI 210.**

BI 290 Marine Biology 3-4
Investigation of the distribution of the dominant animals and plants in a salt marsh, sand beach, tide pool, and rocky intertidal area. Data on physical and chemical factors of these habitats will be correlated with the composition, behavior and physiology of the flora and fauna of each habitat. 4 hrs. of lecture/lab/field work per week, plus some additional hours. Offered: Fall semester (alternate years). **Prerequisites: BI 200, BI 210 and permission of Instructor.**

***BI 300 Parasitology 3-4**
The morphology and diagnostic identification of representative groups of parasitic protozoa, helminths and arthropods, and their functional life-cycle and pathogenic relationships to animal and human hosts. Epidemiology, pathology and control and treatment of important parasitic diseases. 2 hrs. lecture, 2 hrs. lab per week. Offered: Spring semester (alternate years). **Prerequisites: BI 200 and BI 440.**

***BI 310 Ornithology 3-4**
An inquiry into the life of birds. Emphasis on correlation of structure, function and behavior. Laboratory studies of external characters, anatomy and criteria for identification. Optional field trips. 2 hrs. lecture, 2 hrs. lab per week. Offered: Spring semester (alternate years). **Prerequisite: BI 110 or BI 200 or permission of Instructor.**

***BI 315 Ichthyology 3-4**
The study of the classification, ecology and physiology of the fish common to Massachusetts. Both marine and freshwater species will be covered, with field collecting trips planned. Class time will be divided between lecture and laboratory work. Offered: Fall semester (alternate years). **Prerequisite: BI 200 and BI 230, or permission of Instructor.**

***BI 320 Invertebrate Physiology 3-4**
An experimental course designed to acquaint students with the physiological activities of invertebrate animals. Experiments are conducted on feeding and digestion; respiration and circulation; osmotic regulation and excretion; nerve reception and responses; effectors; and conducting systems. Lecture/lab/demonstration. Offered: Fall semester (alternate years). **Prerequisite: BI 200.**

***BI 330 Entomology 3-4**
Anatomy, habits, life histories and identification of insects and some related anthropods. Laboratory work includes preparation of a representative collection of adult and larval forms from terrestrial and aquatic environments with emphasis on techniques for identification of these forms. 4 hrs. lecture/laboratory, plus additional hours for field trips and identification. Offered: Fall semester (alternate years). **Prerequisite: BI 200 or permission of Instructor.**

BI 340 Limnology 3-4
A study of fresh waters and their inhabitants: survey of protists, invertebrates, vertebrates and plants collected from local waters and their ecological interrelationships as determined by biological, physical and chemical parameters. 1 hr. lecture, 3 hrs. lab/field trips per week. Offered: Fall semester (alternate years). **Prerequisites: BI 210 and BI 230 or permission of Instructor.**

BI 350 Plant Taxonomy 3-5
Classification of higher plants in accordance with evolutionary principles and trends. Laboratory is devoted to the techniques of plant identification with emphasis on the terminology and use of botanical keys. Field trips for collecting representative elements of the local flora and preparation of an herbarium. 1 hr. lecture, 4 hrs. lab per week, plus some independent project work. Offered: Fall semester (alternate years). **Prerequisite: BI 210 or permission of Instructor.**

***BI 360 Biology of Algae 3-4**
Collection and identification of common algae found in the New England area. Emphasis on freshwater forms, but some study of marine algae as well. Distribution of algal species will be correlated with physical and chemical factors in their habitats. Laboratory will include study of algal physiology and reproduction as well as techniques for cultivation. 1 hr. lecture, 3 hrs. lab/field trips per week. **Prerequisite: BI 210.**

***BI 370 Mammalogy 3-4**
A study of the special adaptations, life histories, ecology and identification of the mammals of New England. Laboratory work will include identification and preparation of small mammal study skins. Field trips will be made to capture and study animals in the field and to museums for access to study collections and habitat groupings of the larger mammals unlikely to be seen in the wild. 4 hrs. lecture/laboratory plus additional hours for field trips. Offered: Spring semester (alternate years). **Prerequisite: BI 200 or permission of Instructor.**

BI 387 Student Teaching in Biology 6-6
Student Teaching Practicum in Biology. Students are assigned to cooperating schools for a semester of student teaching.

BI 390 Tropical Marine Biology 3
A course designed to acquaint students with a variety of tropical marine habitats. Students will be involved in small individual or group projects at a location in the Caribbean for approximately two weeks during the winter intersession. They will be expected to read selected articles during the semester prior to the trip, and on completion, a comprehensive report on the results of their investigation will be required of each individual or group. In addition, each student is responsible for their travel, room and board expenses for the trip. Offered: Spring semester (including the winter intersession). **Prerequisites: Permission of Instructors.**

***Courses marked by an asterisk are not offered on a regular basis.**

BI 400 Developmental Biology **3-4**
A detailed description of developing embryos from the fertilized egg through the various stages leading to the adult organism. Current theories regarding the molecular mechanisms underlying cell differentiation and other classic developmental processes is also a major theme of this course. Other topics include regeneration, metamorphosis and cancer. Laboratory involves study of development in live sea urchins, chicks, frogs and ferns as well as work with prepared slides. 2 hrs. lab per week. Offered: Spring semester. **Prerequisites: BI 200, BI 210, BI 280, or permission of Instructor.**

BI 410 Biochemistry **3-5 to 7**
Individually paced, mastery-oriented introduction to the chemistry of biologically important molecules and their metabolism and regulation; water, proteins, lipids, carbohydrates, nucleic acids and their components. Laboratory emphasizes manual and instrumentated techniques for isolation, qualitative and quantitative analysis of macromolecules and the kinetics and induction of enzymes. 2-4 hrs. conference, 3 hrs. lab per week. Offered: Spring semester. **Prerequisite: at least one semester of Organic Chemistry.**

BI 420 Human Biology **3-4**
Anatomy and physiology of the cells, tissues, organs and organ systems of the human organism and their functional interrelationships. (Intended primarily for juniors and seniors who are majoring in Biology or Medical Technology). 4 hrs. of lecture/lab/demonstration. (Not open to students who have completed BI 120/130)

BI 425 Endocrinology **3-3**
A study of chemical integration of physiological processes by hormones and related agents. Discussions include structure and function of vertebrate and other animal endocrine systems, neuroendocrine relationships, and other topics of current interest. 3 hrs. lecture/demonstration. Offered alternate years. **Prerequisites: BI 200 and BI 120/130 or BI 420, or permission of instructor.**

***Courses marked by an asterisk are not offered on a regular basis.**

BI 430 Cell Biology **3-4**
Cell and subcellular structure and function. Membranes, cell organelles, bioenergetics, photosynthesis, DNA and RNA structure, function and replication, protein synthesis and gene regulation are the major areas considered. Laboratory includes absorption spectrophotometry, cell fractionation, organelle isolation, DNA isolation and denaturation. 2 hrs. lecture, 2 hrs. lab per week. Offered: Fall semester. **Prerequisites: BI 200, BI 210, BI 280 and Organic Chemistry.**

BI 440 General Microbiology **3-4**
Structure, nutrition and growth of bacteria; characterization of representative bacteria, fungi, viruses and protozoa and their genetic and metabolic peculiarities. Immunological techniques and the immune response in man. Laboratory work includes aseptic technique, isolation and cultivation of microbes, staining techniques and diagnostic metabolic reactions. 2 hrs. lecture, 2 hrs. lab per week, plus additional time. Offered: Fall semester. **Prerequisite: Organic Chemistry or permission of Instructor.**

***BI 450 Topics in Molecular Biology** **3-3**
An advanced course dealing with a variety of topics including: molecular approaches to cancer, recombinant DNA, sequencing of DNA and RNA, origin of life, current advances in molecular genetics. Offered spring semester. **Prerequisites: BI 280; and BI 410 or BI 430.**

BI 470 Environmental Health **3-3**
Investigations into that aspect of public health that concerns itself with forms of life, chemical substances, environmental conditions and other forces in the surroundings of man that exert an influence on his health and well-being. 3 hrs. of lecture discussion and occasional field trips. Offered: Fall semester. **Prerequisite: BI 110 or equivalent or permission of Instructor.**

BI 480 Neurobiology **3-4**
Neural activity and the neural bases of behavior as illustrated by simpler invertebrate and vertebrate nervous systems. Topics will also include: structure and function of neurons, neurodevelopment, cellular basis of behavior (sensory and motor systems), neuropharmacology, neural plasticity. Lectures/demonstrations. **Prerequisite: one year of Animal Biology and one year of Chemistry, or permission of Instructor.**

BI 481 Immunology 3-3
A survey of the immune response, antibody formation and function, immuno-suppression, blood group antigens and antibody-antigen reactions. The principles of complement activity, hypersensitivity and autoallergic reactions. Lectures/laboratory. Offered: Spring semester. **Prerequisites: BI 440 and Organic Chemistry.**

BI 488 Biology Teaching Methods 3-3
Methods and philosophical background for teaching of modern biological science. (This course is a prerequisite for student teaching and should be taken the semester prior to student teaching: consult Screening Policies for Student Teachers for other requirements for student teaching.) 1 hr. public school assisting, 1 hr. discussion, 1 hr. independent study per week. Offered: Fall semester. **Prerequisites: junior or senior standing, ED 301, PY 223 and permission of Instructor.**

BI 490 Independent Study 1 to 3 credits
Laboratory or other independent research under the guidance and supervision of one or more faculty members. A comprehensive term paper is required for successful completion of the project. Offered: Fall and Spring semesters. **Prerequisites: junior or senior standing, 15 credits of Biology and special permission of the Departmental Curriculum Committee.**

BI 495 Internship in Biology 3-6
Laboratory or field experience in conjunction with established research programs at cooperating off-campus governmental industrial or private foundations. Supervision is shared by program directors and faculty members at Fitchburg State College. Assignments, contingent upon student's abilities and acceptance by the cooperating institution, involve one or two full days of work per week. **Prerequisites: Senior standing and approval of the Biology Department.**

***Courses marked by an asterisk are not offered on a regular basis.**

BUSINESS ADMINISTRATION

CHAIRMAN AND ASSOCIATE PROFESSOR: George Murphy
ASSISTANT PROFESSOR: Harold Schonbeck
INSTRUCTORS: Ann Bogojavlensky, David Carey, John McKeon, Francis Morrison, Gary Vostok, Dennis Moore, James Noonan

The Business Administration Program at Fitchburg State College includes concentrations in either of four areas of business: accounting or management, marketing, or labor relations.

Core Curriculum: Principles of Accounting I and II, Business Law I, Basic Finance, Practice or Management, Fundamentals of Marketing, Economics I and II, Statistics I and II, Introduction to Computers for Business. Accounting Curriculum: Intermediate Accounting I and II, Business Law, Cost or Managerial Accounting, Tax Accounting, Auditing, Advanced Accounting I and II, Financial Management of Corporations. Management Curriculum: Production Management, Personnel Management, Industrial Psychology, Business Fluctuations and Forecasting, Organizational Behavior and Theory, Social and Political Environment of Business, Business Policy and Strategy and 6 semester hours of Business Electives.

BA 110 Principles of Accounting I 3-3
This course examines basic accounting theory and its application. The course includes the accounting equation; journalizing, posting and trial balance; adjusting and closing procedures; preparation of financial statements; use of special journals, receivables and payables; merchandise inventory; accounting systems and processes.

BA 111 Principles of Accounting II 3-3
This course deals with the more complex forms of business: partnerships and corporations; capital stock and bonds; retained earnings; income taxes and cost analysis. **Prerequisite: BA 110.**

BA 210 Intermediate Accounting I 3-3
In this course emphasis is placed on the application of accounting theory to practice problems in order to develop financial statements of proper form and content. The relationship between various financial statements is constantly reaffirmed. Asset items of the balance sheet are treated comprehensively. **Prerequisite: BA 111.**

BA 211 Intermediate Accounting II 3-3
Liabilities, reserves, funds and stockholders' equity items are thoroughly treated. Presentation is made of the analysis of financial statements through the use of the ratio method and the consequent critical appraisal attendant upon this method of analysis is stressed. **Prerequisite: BA 210.**

BA 220 Principles of Management 3-3
This course is an introduction into the history and development of modern management philosophy. The course will discuss the principles and techniques of business as they relate to the planning, organizing, directing, and controlling of business enterprises.

BA 230 Fundamentals of Marketing 3-3
This course discusses the role of marketing in our economic and social structure. It includes the planning, distribution, pricing and promotion of goods and services to consumer and industrial markets, viewed as internal activities of the firm, and as shaped by environmental forces.

BA 240 Basic Finance 3-3
This course studies the forms and sources of financing business firms, large and small, corporate and noncorporate. The emphasis is on financial planning and developing judgment in formulating decisions on financial problems. **Prerequisite: BA 110.**

BA 250 Business Law I 3-3
This course is an introduction to the study of business law, its nature and classification, the court systems and their procedures. Contract law, the law of sales and personal property are comprehensively dealt with.

BA 251 Business Law II 3-3
This course is a continuation of Introduction to Business Law and deals with the law of agency, commercial, paper, credit, and the various forms of business. **Prerequisite: BA 250.**

BA 260 Labor Relations and Collective Bargaining I 3-3
An in-depth study of fundamental labor-relations issues: the development of federal labor policy; union organization and union organizing; collective labor-contract negotiation; contract enforcement and the use of strikes and lockouts, boycotts and picketing, and multiemployer bargaining; arbitration and grievance procedure; health, welfare, and safety concerns; equal employment opportunity; labor economics; and state and federal labor legislation, and the role of government in labor disputes.

BA 261 Labor Relations and Collective Bargaining II 3-3
A continuation of BA 260. A significant part of the second semester will consider public sector collective bargaining and organizing (local, state, and national, and within health-care organizations). **Prerequisite: BA 260.**

BA 312 Cost Accounting 3-3
The control aspects of material, labor, and overhead accounting are stressed. The course covers such areas as job and process costs, standard costs, direct costing, marketing costs, costs in decision-making, capital budgeting and profit planning. **Prerequisite: BA 111.**

BA 313 Cost Accounting II 3-3
This course covers planning of profits, costs, and sales through the use of budgets, cost behavior analysis and cash forecasts. The course introduces direct costing, standard costing and conventional gross profit analysis. It emphasizes the uses of cost accounting data for policy making and decision making purposes through break-even analysis, capital budgeting, differential and comparative cost analysis. **Prerequisite: BA 312.**

BA 314 Managerial Accounting 3-3
This course stresses the usefulness of accounting data as it relates to the managerial decision-making process. Computer applications are integrated with the broad objectives relative to planning, control, and analysis. Among the multi-faceted areas of study are financial statement analysis, budgeting standard cost analysis, and capital expenditure planning and control. **Prerequisite: BA 111.**

BA 320 Production Management 3-3
The basic principles of production management related to the effective utilization of the factors of production in manufacturing and non-manufacturing activities for both intermittent and continuous systems are discussed. The course will also study production organizations, analytical models and methods, facilities design, and the design of control systems for production operations.

BA 321 Personnel Management 3-3
This course surveys techniques of modern personnel management from both the manager and personnel manager's point of view. The course will include such topics as recruitment, selection, interviews, evaluation and development, leadership and supervision, management and labor relations, wage and salary administration.

BA 322 Business Fluctuations and Forecasting 3-3
This course is an analysis of the operations of our free enterprise system with emphasis on the factors responsible for economic instability; analysis of public and business policies which are necessary as a result of business fluctuations. **Prerequisite: MA 170.**

BA 330 Advertising 3-3
Topics in this course will include the functions of advertising, planning and advertising campaign copy, artwork, and media selection. Students will become knowledgeable about the preparation and use of advertising. **Prerequisite: BA 230.**

BA 331 Consumer Behavior 3-3
This course will familiarize the student with the consumer decision-making processes. It will utilize the concepts of the social and behavioral sciences in order to provide an understanding of consumer buying behavior. **Prerequisite: BA 230.**

BA 332 Market Research 3-3
This course will emphasize the importance of research in marketing planning and decision making. It will include the basics of scientific investigation, the search for information, sampling, data collection, data analysis, interpretation and reporting. **Prerequisite: BA 230 and MA 107.**

BA 363 Collective Bargaining Methods 3-3
After a discussion of strategies and tactics used in labor negotiations, this course will evolve from simulated contract negotiations. It will give the student first hand knowledge of what goes on at the bargaining table.

BA 410 Advanced Accounting I 3-3
This course includes accounting problems involved in the preparation of consolidated financial statements and in home and branch office relationships, mergers and pooling problems are stressed. Special problems in fund and budgetary accounting for government entities and hospitals are covered. **Prerequisite: BA 211.**

BA 411 Advanced Accounting II 3-3
The purpose of this course is to develop in the student the ability to solve a variety of complex problems in order to prepare him for either public professional examinations or executive accounting work in private business. **Prerequisite: BA 410.**

BA 412 Tax Accounting 3-3
This course considers the Massachusetts and Federal Income Tax Laws, with application to individuals, partnerships, fiduciaries, and corporations. **Prerequisites: BA III or permission of the Instructor.**

BA 413 Advanced Taxation 3-3
This course will study the Federal income tax laws and regulations applicable to partnerships, corporations, and fiduciaries. Federal gift and estate taxes, reorganizations, and personal holding companies will also be discussed. **Prerequisite: BA 412**

BA 414 Auditing **3-3**
The basic concepts of auditing and control are examined in this course. It emphasizes internal control, audit problems, and professional responsibilities of the C.P.A. to the auditing requirements. **Prerequisite: BA 211.**

BA 415 Accounting Theory **3-3**
This course will develop a thorough knowledge and understanding of the theory which supports generally accepted accounting principles. Emphasis will be on the application of accounting theory to current financial reporting. **Prerequisite: BA 410.**

BA 420 Organizational Behavior and Theory **3-3**
This course is a general descriptive and analytical study of organizations from the behavioral science point of view. It includes problems of motivation, leadership, morale, social structure, group networks, communications, hierarchy, and control in complex organizations. The interaction between technology and human behavior is discussed. Consideration of alternative theoretical models is given. **Prerequisite: PY 110.**

BA 421 Social and Political Environment of Business **3-3**
This course is a study of the evolution of American business in the context of its changing political and social environment. Analysis of the origins of the American business creed, the concept of social responsibility of business, and the expanding role of the corporation are included.

BA 422 Business Policy and Strategy **3-3**
This is an integrating course embracing all organic management functions. Cases are used as subjects for analysis and systematic decision making practice. **Prerequisites: BA 111, 314, 320, 321, 322 or the permission of Instructor. permission of Instructor.**

BA 430 Sales Management **3-3**
This course will enhance the student's understanding and skills in managing the selling function. The emphasis is on personal selling as an element in the marketing mix. **Prerequisite: BA 230.**

BA 431 Retail Marketing **3-3**
This course introduces the student to the nature and scope of retail marketing and management. The course will include the structure of retailing, merchandising, buying, pricing, promotion, organization and management of the retail firm. **Prerequisite: BA 230.**

BA 432 Industrial Marketing **3-3**
This course centers on the marketing of goods to industrial firms, governmental agencies and other organizations included within the industrial market. The areas covered in the course will include distribution channels, pricing policies, product planning and market strategy. **Prerequisite: BA 230.**

BA 433 International Marketing **3-3**
This course will concentrate on the marketing activities of firms operating in an international market. It will provide the student with an understanding of the factors that influence the selling of products in international markets. It will include the planning, organizing, and controlling of international marketing, along with its law, history, and economics. **Prerequisite: BA 230.**

BA 434 Developing Marketing Strategies **3-3**
Through the use of case studies and, where possible, cooperating businesses and nonprofit organizations, students will identify the pertinent marketing problems and opportunities, assess the organization's resources, and develop viable marketing programs. The course will include new product development and management strategies for effective marketing policies over the course of the entire product life cycle. **Prerequisite: BA 230.**

BA 440 Financial Management of Corporations 3-3

This course covers the analysis and management of the flow of funds through an enterprise. Cash management, source, and application of funds, term loans, types and sources of long term capital. Capital budgeting, cost of capital, and financial structure. It is an introduction to capital markets. **Prerequisite: BA 240.**

***BA 460 Labor Law I 3-3**

A course relating basic labor issues to the legal process. The study begins with a brief history of U.S. labor in the courts, tracing the development of national labor policy in the twentieth century, embodied in the National Labor Relations Act and in related federal law and regulation. The course then considers the role to the National Labor Relations Board and federal courts in determining whether labor organization conduct or employer conduct constitute "unfair labor practices" under the Act. The course relies mainly on primary materials, both state and federal court decisions, and administrative opinions.

***BA 461 Labor Law II 3-3**

A continuation of BA 460. **Prerequisite: BA 460.**

***Courses marked by an asterisk are not offered on a regular basis.**

CHEMISTRY

CHAIRMAN: Daniel Robinson
PROFESSOR: George Condike
ASSOCIATE PROFESSOR: Daniel Robinson, Robert Strong
ASSISTANT PROFESSOR: Arthur Lerit
INSTRUCTOR: Mary Svenson

The degree of Bachelor of Arts in Chemistry must include CH 110, 120, 200, 210, 300, 320, 330, 350, PH 130, 140; MA 230, 240 and at least three semester hours of Chemistry electives at or above CH 360. PH 150 is recommended for all Chemistry Majors and proficiency in German at the second year level is required for the Bachelor of Arts.

The Bachelor of Science in Chemistry must include CH 110, 120, 200, 210, 300, 320, 330, 350; CS 150, 230; PH 130, 140; MA 230, 240 and at least 3 semester hours of electives in Chemistry at or above CH 360. PH 150 is recommended.

A minor in Chemistry consists of CH 200 210, and 300 in addition to one course selected from CH 350, 320, 330, or 360.

CH 100 Chemistry for Industrial Technology 3-4

The fundamentals of atomic structure, chemical bonding, chemical reactions, solutions, acids and bases, gases and a brief introduction to organic chemicals are discussed. Emphasis is placed on industrial processes and applications of basic concepts of chemistry.

CH 110 General Chemistry I 4-5

The fundamental laws and theories of chemistry such as atomic structure, the periodic table, electrochemistry, descriptive inorganic chemistry, the gas laws, solutions, and chemical binding. Chemical calculations are emphasized.

CH 120 General Chemistry II 4-5
Continuation of (and prerequisite): CH 110 or the equivalent.

CH 130 Chemistry I 3-4
Fundamentals of chemistry for non-science majors. This course is largely limited to inorganic concepts.

CH 140 Chemistry II 3-4
Continuation of (and prerequisite): CH 130 or the equivalent. It also involves a study of organic chemistry.

CH 200, 210 Organic Chemistry I and II 4-6 each
Properties of organic compounds are discussed in terms of their molecular structures and reaction mechanisms. Recommended for chemistry majors, and/or others contemplating graduate study and for those who feel the need for a solid theoretical foundation. **Prerequisites for CH 200: CH 110 and 120.**

CH 240, 250 Introduction to Organic Chemistry I and II 4-5
A survey of the major classes of organic compounds—their chemical and physical properties. Reduced emphasis on theoretical foundations permits inclusion of topics in natural products, chemistry and bio-organic application. **Prerequisites: CH 110 and 120.**

CH 300 Quantitative Analysis 4-6
Emphasis on theory and application of Quantitative Analysis. The lectures stress chemical equilibrium, solubility product, complexometric formation, oxidation-reduction, and stoichiometric calculations. **Prerequisites: CH 110 and 120 or the equivalent.**

CH 320 Physical Chemistry I 4-5
The underlying principles of chemistry from a physical chemistry standpoint. Kinetic theory, theories of the structure of matter, theory of electrolytic solutions, electrochemistry, thermodynamics, kinetics. **Prerequisite: CH 300 or the equivalent. Offered in alternate years.**

CH 330 Physical Chemistry II 4-5
Continuation of (and prerequisite): CH 320. **Offered in alternate years.**

***Courses marked by an asterisk are not offered on a regular basis.**

CH 350 Instrumental Analysis 3-5
Essentially a laboratory course in Instrumental Analysis including one hour lecture per week. Laboratory experiments include spectrophotometric, conductometric, potentiometric, and chromatographic analysis. **Prerequisite: CH 300 or the equivalent.**

***CH 488 Chemistry Methods 3-3**
Methods of teaching chemistry at the secondary level. Includes a survey of modern secondary science curriculum. Required of all Chemistry education majors. **Prerequisite: CM 020.**

ADVANCED TOPICS

Student and faculty availability determine the following course offerings.

***CH 360 Advanced Inorganic Chemistry 3-3**
Valancy theories, acid-base theories, reactions in non-aqueous solvents, complexation and chelation, physical measurements. **Prerequisite: CH 320 or the equivalent.**

CH 400 Natural Products Chemistry 3-6
Isolation, purification, and identification of pure compounds from a variety of naturally occurring substances. Special techniques will be introduced whenever feasible. Six hours of laboratory. **Prerequisites: CH 200 and 210.**

***CH 410 Polymer Chemistry 3-6**
An introduction to the synthesis and properties of macromolecules which also serves as an application of chemical principles to this interesting and important group of materials. Two hours of lecture and one four-hour laboratory period. **Prerequisites: CH 200 and 210 or the equivalent.**

CH 430 Radiation Chemistry 3-3
Fundamentals of radiation chemistry, including radioactivity, atomic nuclei, nuclear reactions, activation analysis, reactors, and radiation detection and measurement with emphasis on the use of radioactive materials in chemical applications. **Prerequisites: CH 300, PH 140.**

CH 490 Independent Study in Chemistry 1 to 3 S.H.
Laboratory research under guidance of the Chemistry staff. **Prerequisite: Permission of the Instructor.**

COMMUNICATIONS/ MEDIA

CHAIRMAN: Lee DeNike
PROFESSORS: William Bowers, Lee DeNike, David Ryder
ASSOCIATE PROFESSORS: William Fitzgibbon, Peter Laytin, Norman Locke, John Magnasco
ASSISTANT PROFESSORS: Teresa Carsten, John Meaney
INSTRUCTOR: Gunter Hoos

The Communications/Media Program is designed to integrate the theory and skills necessary for the design, production and evaluation of visual, electronic and printed media. Using the most sophisticated, multi-million dollar facility in the Commonwealth, the program prepares students for professional careers in the fields of: photography, documentary film making, video, graphic design, and computer assisted-managed instruction. Opportunities are also provided for exploration in technical writing. Coupled with a well-rounded education in the humanities, sciences and social sciences, students culminate their course of study with on-the-job training in their chosen area of specialization.

PHASE I

Phase I is the foundation of the program and is comprised of four required courses. Students are introduced to a variety of language and code systems used in print and non-print media. Other studies in this phase of the program include an introduction to the creation and interpretation of visual messages, the impact of mass media upon the individual and society, and the technology used to convey messages.

PHASE II

Phase II provides the student with an opportunity to examine the personal and social interaction skills necessary for professional effectiveness. In this phase the student selects three of the listed courses. Topics of study include: interpersonal communication, group dynamics, learning theory, and organizational and management procedures.

PHASE III

Phase III is the "specialization" area of the program. It provides an opportunity for students to become involved with an in-depth investigation in the area of communications most closely aligned with individual talents and career inclinations. Students may choose one of the following areas for specialization: photography, graphic design, documentary film, video, computer assisted-managed instruction. Selection of an option and the six courses necessary to complete the option is done with the consent of the student's advisor.

PHASE IV

Phase IV is the culmination of study providing the student with an opportunity to apply his or her knowledge and skills to a professional work setting associated with the chosen area of specialization.

COURSES DESIGNED FOR NON-COMMUNICATION MAJORS

CM 010 Audiovisual Equipment Operation **1-1**
This course will focus on the knowledge and skills necessary to operate audiovisual equipment.

CM 020 Design, Preparation and Production of Instructional Materials **3-3**
This course will provide students with practical experience in visual communications. Students will become involved in a variety of media activities including the design, preparation, production and evaluation of graphic, photographic and other types of visual and aural materials.

CM 030 Amateur Photography **3-3**
This course deals with the fundamentals of photography. A minimum emphasis is placed on darkroom techniques. Students are responsible for all paper and film supplies.

COURSES DESIGNED FOR COMMUNICATIONS MAJORS

Phase I

CM 110 Introduction to Languages of Communication 3-3
Examination and experimentation with organized sets of symbols that constitute a language or code using tools and concepts evolved in the study of English. The language/codes studied will include computer programming, languages, visual languages, and non-verbal interpersonal language.

CM 111 Introduction to Communications Technology 3-3
A general overview of communication hardware with applications to appropriate software. Course will consist of auto-tutorial teaching materials and classroom instruction.

CM 112 Introduction to Message Design 3-3
An overview of visual communications. Students will become involved with a variety of media activities providing experiences in the design, conversion, interpretation and evaluation of graphics, film, television and photography.

CM 113 Introduction to Communications Systems 3-3
The physical relationships in the encoding, decoding, and storage of communication transmission systems.

Phase II

CM 220 Human Context of Communications Technology 3-3
A study of the human relations problems associated with the introduction of communication technology into business organizations, schools, and other public and private agencies. Students will develop skills in shaping their communications with people who may have different attitudes toward a particular technology. The courses will attempt to develop alternative explanations or translations of given technological characteristics into the framework and values of hypothetical and actual clients.

CM 221 Learning, Teaching and Instructional Communications 3-3
An examination of selected learning theories, an overview of various instructional approaches or methods, and the application of the two to instructional communications.

CM 222 Organizational Communication 3-3
An examination of the organizational and management procedures used as vehicles for communication within business and educational institutions.

CM 223 Communications Law 3-3
A study of statutes and regulations governing press, broadcasting and films; comparative analysis of the defamation, contempt, privacy, copyright; discussion of ethics and practice in mass media and business; history of the principles of the laws governing the mass media.

CM 224 Principles and Techniques of Color 3-3
The history of color theory and its implications and applications to communicative systems.

Phase III

CM 300 Introduction to Mini Computers 3-3
An examination of a mini-computer system in terms of theory and application. Emphasis is placed on the development of computer literacy using non-technical terms. No previous experience with computers is assumed.

CM 330 Word Processing 3-3
Students operate computer programs to create, store, revise and print information in a variety of styles. Emphasis is on hands-on applications using non-technical terms. Typing experience is helpful but not necessary. There are no prerequisites for the course.

CM 331 Basic Programming for Computer Assisted Instruction I 3-3
An introductory programming course featuring the BASIC programming language. Course content includes disc operation system (DOS), computer input/output in CA/MI, data management systems and color graphics. **Prerequisite: CM 330.**

CM 332 Basic Programming for Computer Assisted Instruction II 3-3
An advanced course in CA/MI programming featuring a microcomputer assembly language, memory addressing, stacks, indirect addressing, instruction sets and applications in developing logarithms. Machine language callable subroutines will be developed for use with the BASIC language. **Prerequisite: CM 330 and 331.**

CM 333 Computer Assisted/Managed Instruction (CA/MI) I 3-3
A beginning course in computer assisted and computer managed instruction (CA/MI). An introduction to word processing, use of CAI authoring language, and computer assisted TV instruction (CARVI) are included in the course. Knowledge of CM 330 is assumed.

CM 334 Computer Assisted/Managed Instruction (CA/MI) II 3-3
A continuation of CA/MI I with applications in actual courses. Each student prepared modules using word processing, CAI and CATVI under the supervision of an instructor. Field testing the modules is an integral part of the course. **Prerequisites: CM 331 and CM 333.**

CM 335 Computer Assisted/Managed Instruction (CA/MI) III 3-3
A systems approach to instructional design supported with CA/MI. Topics include validating CAI and CATVI instructional materials, student response mechanisms and computer supported instructional monitoring. **Prerequisites: CM 332 and CM 334.**

CM 340 Newswriting and Reporting for Industrial Publication I 3-3
Fundamentals of news gathering, news evaluation, and structure of news story for the trade and technical journal; writing for instructional manuals; product announcements and critiques.

CM 341 Newswriting and Reporting for Industrial Publication II 3-3
A continuation of the development of the writing skills and reporting processes as examined in CM 340.

***Courses marked by an asterisk are not offered on a regular basis.**

***CM 342 Feature and Magazine Writing for the Technical Journal 3-3**
Writing feature articles for the technical journal, study of markets open to free-lance writers; analysis of current publications but subject matter primarily students' own work with emphasis on rewriting. **Prerequisites: CM 340, CM 341.**

CM 343 Copy Editing 3-3
Principles and laboratory practice in editing news copy, writing headlines, evaluating news, selection of news and feature photographs, caption writing, front page and inside page makeup. **Prerequisites: CM 340, CM 341.**

CM 344 Photojournalism 3-3
Visual communication of information keyed to picture series and picture stories with primary emphasis on utilization within industry-oriented market. **Prerequisites: CM 360, and permission of Instructor.**

***CM 345 Writing and Editing for Public Communication 3-3**
Emphasis on fundamentals of writing for public communication; analysis of variables, viz., readability, color clarity, organization of material, flow, crispness. Customary forms used in the field including news releases, features, profiles, articles, editorials, manual copy. Further examination of institutional editor as creative interpreter of messages to numerous publics inside and outside the organization. **Prerequisites: CM 340, CM 341.**

***CM 346 Principles and Practices of Public Relations 3-3**
Treatment of definitions and concepts, history, potential careers, research methods. Focus on role of managed communications in public relations unique to industry, human services and education institutions.

CM 350 Television Production I 3-3
An examination of the production techniques used in television, using both portable and fixed studio equipment. **Prerequisites: CM 112, CM 380, and permission of Instructor.**

CM 351 Television Production II 3-3
Advanced production techniques including lighting, set design, staging concepts and studio operation. **Prerequisites: CM 350 and permission of Instructor.**

CM 352 Instructional Television 3-3
A study of the research, evaluation and application of the television medium for instructional purposes. **Prerequisites: CM 350 or permission of Instructor.**

CM 353 Script Writing 3-3
Emphasis on writing scripts for industrial, educational, documentaries and dramatic productions that utilize electronic media. **Prerequisite: CM 351.**

CM 354 Commercial and Public Broadcasting 3-3
An examination of documentary reporting and editing and the preparation and presentation of news, commentary, feature stories, news pictures, and films. It will also develop a critical appraisal of contemporary commentators. **Prerequisites: CM 351 and permission of Instructor.**

CM 355 Television Management 3-3
A study of television management with emphasis on facilities, personnel functions and activities. **Prerequisites: CM 351 and permission of Instructor.**

CM 356 Industrial Television—On-Location Production 3-3
Development of the skills necessary for on-location video taping using the latest in portable color television equipment. The sites will include industry, business, military, community and health science locations. **Prerequisites: CM 354 and permission of Instructor.**

CM 360 Introduction to Photography 3-3
An introduction to the technical and aesthetic aspects of photography such as exposure techniques, film, paper, and basic 35mm camera work. Students are responsible for all paper and film supplies.

CM 361 Photography II 3-3
A continuation and refinement of the material covered in CM 360. Editing, sequencing and visual articulation are stressed. Students are responsible for all paper, film and mounting materials. **Prerequisite: CM 360.**

***Courses marked by an asterisk are not offered on a regular basis.**

CM 362 Photography III 3-3
Advanced work in 35mm photography will be presented in addition to an introduction to medium format cameras. Studio lighting and portraiture will be explored. Students are responsible for all paper, film and mounting materials. **Prerequisite: CM 361.**

CM 363 Large Format Photography 3-3
This course will specialize in 4 x 5 photography and the use of the Zone System. Students are responsible for all paper and film supplies. **Prerequisite: CM 361.**

CM 364 Introduction to Color 3-3
An introduction to color photography basic theory, C-prints, paper, and Chemistry. Students are responsible for all paper and film supplies. **Prerequisite: CM 361.**

CM 365 Photography—An Historical and Cultural Perspective 3-3
A survey of the beginning and development of photography with a look to the future and its implications.

CM 366 Planning, Organization and Management of a Photographic Facility 3-3
Students will be able to design a space for private, commercial and educational usage. Included will be an understanding of flow, function, equipment inventory, record-keeping and budget control. **Prerequisites: CM 361 and permission of Instructor.**

CM 367 Multi Screen Imaging 3-3
Development of skills necessary to plan, produce and present industrial and educational audio-visual programs requiring a single or multi-screen images. **Prerequisite: Permission of the Instructor**

***CM 368 Bio-Medical Photography 3-3**
Examination and practice with the current techniques in applying photography to the biomedical field. Students are responsible for all paper and film supplies. **Prerequisites: CM 362, CM 363, CM 364.**

CM 369 Photography Seminar 3-3
Advanced study in the medium. Students are responsible for all paper and film supplies. **Prerequisites: CM 362, or CM 363, or CM 364.**

CM 370 Introduction to Filmmaking-Silent Super 8 3-3
An introduction to cameras, film, lighting, editing, basic animation and wild sound. Students are responsible for all film supplies.

CM 371 Film Production II—Single System Super 8 3-3
An introduction to single system cameras, single system sound, portable and augmented lighting, and basic single system editing. Students are responsible for all film supplies. **Prerequisite: CM 370.**

CM 372 Film Production III—Double System Super 8 3-3
An introduction to double system cameras, double system sound, advanced lighting, editing, directing, and knowledge of film crews. Students are responsible for all film supplies. **Prerequisites: CM 370 and permission of Instructor.**

***CM 373 Advanced Film Seminar 3-3**
An opportunity to deal with advanced projects in single or double system super 8. Students are responsible for all film supplies. **Prerequisites: CM 371 or CM 372 and permission of Instructor.**

***CM 374 Special Topics—16mm 3-3**
Examination and practice with 16mm double system. Students are responsible for all film supplies. **Prerequisites: CM 373 and permission of Instructor.**

***CM 375 Animation 3-3**
Examination of animation techniques for education, industry, and aesthetics. Students are responsible for all film supplies. **Prerequisites: CM 370 and permission of Instructor.**

CM 376 History of Film I—Narrative 3-3
A study of the narrative approach to film making starting from the silent era.

CM 377 History of Film II—Documentary 3-3
A history of documentary films including both silent and sound.

CM 380 Introduction to Graphic Design 3-3
An introduction to the basic methods, attitudes, and skills common to all art forms as applied to graphic communicative form. Emphasis will be on the development of manipulative skill and the ability to handle the basic principles of design such as line, form, balance, contrast, etc. Students are responsible for all graphic supplies.

CM 381 Graphic Design—Production I 3-5
A problem solving approach to graphic design projects. The course involves experiments with the physical and psychological aspects of graphic communication using graphic, typographic, and photographic forms. Emphasis is on the effects of design on the communication process. Students are responsible for all graphic supplies.

CM 382 Graphic Design—Production II 3-5
An examination of the relationship of graphic design to the changing socio-economic forces in our society. This inter-relationship is made evident through the process of solving specific/related design projects. Problems are approached and solutions reached through teamwork and evaluated by joint critique. Students are responsible for all graphic supplies. **Prerequisite: CM 381.**

CM 383 Graphic Design—Photography 3-5
Commercial applications of photography will be explored, including product presentation, advertising, illustration, promotion, and publication photography. The designer as a photographer will solve assigned problems using various techniques and materials including photo modification, various treatments, resin coated papers and Kodalith films. Students are responsible for all graphic supplies. **Prerequisites: CM 360, CM 361, CM 382.**

***CM 384 Graphic Management 3-3**
A study of the theories and practices of advertising, sales, and marketing management in business, industry and education with emphasis on the graphic designer in the roles of creative art director, production manager, and designer/illustrator. **Prerequisites: CM 381, CM 382.**

***Courses marked by an asterisk are not offered on a regular basis.**

***CM 385 Display and Signage Design 3-5**
A survey of the field of general display, P.O.P. display, signage systems, identifiers and other larger forms of graphic expression. Emphasis on clear communication of information, ease of recognizability, and coherence of designed systems. Problems will be taken through finished product or "mock-up". Students are responsible for all graphic supplies. **Prerequisites: CM 381, CM 382.**

***CM 386 Book and Pamphlet Design 3-5**
An exposure to the design of text-intensive pieces. Students work with a variety of media (hand-drawn illustration, photography or typography as a graphic element). A discussion of effects of type choice on readability, use of white space, and methods of illustration are included. Problems involve copy casting, type selection, layout and design of multi-paged work, and choice of format and illustration. Students are responsible for all graphic supplies. **Prerequisites: CM 381, CM 382, CM 388, or permission of instructor.**

***CM 387 Package Design 3-5**
A study of the graphic processes in three-dimensional packaging with emphasis on the various materials and display requirements. Students will investigate and work with letterpress, offset, and silk screen processes. Students are responsible for all graphic supplies. **Prerequisites: CM 381, CM 382.**

CM 388 Typography, Comprehensives and Mechanicals 3-5
An in-depth study of letter forms from ancient through modern photo-modified type. Projects involve the whole process from rough design, through comprehensives, to "camera-ready" mechanicals. Students are responsible for all graphic supplies. **Prerequisites: CM 381, CM 382.**

Phase IV

CM 400 Independent Study
In-depth study of a Communications/Media area not provided within the Communications/Media Curriculum. Permission of the instructor and Department Chairperson required.

CM 401 Practicum 15-30
A full semester internship in which Communications/Media majors apply their knowledge and skills to the solution of comprehensive communications problems.

***Courses marked by an asterisk are not offered on a regular basis.**

COMPUTER SCIENCE

CHAIRMAN: Robert Shaughnessy
ASSOCIATE PROFESSORS: Theodore Lapierre, Robert Shaughnessy
INSTRUCTOR: Gerald Johnson
On Loan: William Brown

The degree of Bachelor of Science in Computer Science must include: CS 150, 200, 230, 280, 310, 320, 370, 380; MA 230, 240, 260; PH 130, 140, 230, 240; plus 9 additional semester hours of Computer Science electives and 6 semester hours of math electives. Recommended electives are CS 210, 420, 440, 550; MA 170, 250.

A minor in Computer Science consists of the following four courses:

CS 150 Intro. to Computer Science
CS 230 Data Structure
CS 280 Assembly Language Programming
CS 230 Programming Languages
and two additional computer science electives (6 semester hours).

It should be noted that enrollment in the Computer Science minor is limited.

CS 100 Introduction to Programming 3-3
This course provides an opportunity to learn a higher level programming language, to gain experience in the design, coding and utilization of computer programs and to gain insight into the responsibilities that humans have when they are involved with "computers."

Topics include: the syntax and semantics of a higher level programming language, the design, coding, testing and application cycle, application areas, man-machine interrelationships. Several programming assignments are included.

Prior to enrolling in this course, the student should have working knowledge of high school algebra. (CS 100 does *not* carry credit toward a Computer Science major.)

CS 150 Introduction to Computer Science 3-3

An introduction and foundation for further study in Computer Science and more specialized programming language courses. Students design programs using a top-down modular approach and code programs using a structured style. They should be well prepared to enroll in more specialized higher level programming language courses.

Topics include: problem definition, I/O requirements; top-down design, modular design, structure programming. The programming language Pascal will be utilized through the courses and several programming assignments are included.

Prior to taking this course, the student should have completed high school algebra. This is the typical first course for Computer Science majors and other students who have a serious interest in this subject. Students gain insight into his/her basic strengths, weaknesses, interests and capabilities in terms of further study in this discipline.

CS 160 FORTRAN Programming 3-3

A study of the programming language FORTRAN and an introduction to numerical methods of problem solving in several areas.

The course content will include: an overview of computer organization, data representations, storage allocation, expressing evaluation, numeric errors, loop structures, decision structures, debugging methods, program verification, FORMAT statements, arrays, functions, and subroutines. Programming projects will include successive approximation, matrix operations, and numerical integration.

Before taking this course, the student should have practical experience with a programming language and a general knowledge of software and hardware components of a modern computing system as may be gained in CS 150. The students should also be familiar with the basic concepts of integration and differentiation covered in MA 230, Calculus I. This course is recommended for students with a mathematics or scientific major.

***Courses marked by an asterisk are not offered on a regular basis.**

CS 180 COBOL—I 3-3

An introduction to the COBOL programming language and top-down program design using the ideas of structured programming. Some of the techniques used to process business data are covered.

Students design and code COBOL programs for the solution of problems requiring multiple fixed and/or variable length records for sequential files. Course content includes: COBOL, identification, environment, data and procedure divisions, problem definition, output format design, input data, record and file design, top-down program design, arithmetic and logical operations, sequential disk files, table-handling, and a substantial number of programming projects.

Before taking this course, the student should have had experience programming with a higher level language and be aware of the function of the major hardware and software components of a digital computer system. Those students desiring working knowledge of COBOL beyond the introductory level should consider CS 270 as a successor course to CS 180.

CS 200 Numerical Methods & Computers I 3-3

This course assumes knowledge of FORTRAN and/or BASIC. Topics generally covered in this course are: brief survey of iterative methods, infinite series, acceleration of convergence of an infinite series, numerical evaluation of exponential, logarithmic, circular functions, etc.; roots of equations, Descartes rule of signs, Fourier-Budan and Sturm theorems; methods of numerical integration. **Prerequisites: good background in algebra and two semesters of Calculus.**

***CS 210 Numerical Methods & Computers II 3-3**

Finite difference methods, interpolation, extrapolation, summation of certain series; Fourier series; ordinary differential equations (Euler, modifies Eurler, Runge-Kutta, etc.). **Prerequisites: Numerical Methods & Computers I (CS 200).**

CS 230 Data Structures 3-3

This course presents the most common methods of organizing information to be used in problem solving and emphasized algorithm, development and programming style. Using the programming language Pascal, the student will practice the structured programming techniques introduced in earlier courses.

After taking this course, the student should

have a firm foundation in computer science and ability to solve a wide variety of programming problems. The student will have been introduced to the "science" of computer science, as opposed to the "coding" of computer programming.

The data structuring techniques studied will include: arrays, records, sets, linked lists, and trees. The structured programming concepts studied will include: loop-invariants, data abstraction, step-wise refinement, and top-down programming. Particular attention will be spent on the interaction between data structures and storage structures and the trade-offs involved in data structure selection.

Before taking this course, the student should be able to program well in a higher level language. It is recommended that students complete CS 150 before taking this course. This course is required of all computer science majors and is recommended for anyone with a serious interest in computer science.

CS 240 Introduction to Electronics 4-5

An introduction to the theory of A.C. and D.C. circuits and an understanding of electronic circuits, solid state diodes, rectifier circuits, and the bipolar transistor and its use in amplifier circuits. Electronic circuits using meters, oscilloscopes, and other laboratory instruments are built and analyzed.

Transistor amplifier circuits are analyzed and designing procedures for rectifiers and filter circuits are covered.

Course content includes: series and parallel D.C. circuits, Kirchoff's Laws, Thevenin's Theorum, capacitors, inductors, series and parallel A.C. circuits, RC and RL circuits, resonance, phasors, diode characteristics, power supplies, bipolar transistors, h-parmeters, and load lines. This course includes weekly laboratory experiments on the topics studied.

Before taking this course the student should have a course in general physics and calculus I (Calculus I may be taken concurrently)

CS 250 Solid State Electronics 4-5

A study of solid state electronic circuits including common emitter amplifiers, amplifiers using Field Effect transistors, oscillators, optoelectronic devices, and operational amplifiers. Students develop a thorough understanding of modern electronic lab equipment including current solid state devices and their use in modern electronic circuits. Laboratory experiments include multistage amplifiers, sine wave oscillators, astable multivibrators, Field Effect amplifiers, operational amplifiers, bistable and monostable multivibrators, Zener diodes and integrated circuits.

The content of the course includes: multi-stage amplifiers, FET amplifiers, feedback oscillators, relaxation oscillators, multivibrators, operational amplifiers. **Prerequisite: CS 240 or equivalent, Calculus I.**

CS 270 COBOL—II 3-3

A study of the facility of COBOL for table and file handling with particular attention to indexed sequential files and variable length records. It is intended for those students interested in becoming able to make substantial contribution in the area of business data processing.

After completing this course, the student should be able to design and code a modest system of programs and provide substantial assistance in the design and coding of larger programming systems. Those students who desire a knowledge of the process of studying the network of interactions within an organization and assist in the development of new and improved methods for performing necessary work should consider CS 300 (Introduction to Systems Analysis) as a successor course to this one.

Topics include: sorting and merging files, table handling, variable length records, indexed sequential access method, file creation, updating and reporting. Includes a substantial number of programming projects.

Before taking this course, the student should have experience that substantially includes the methods and activities of COBOL—I (CS 180).

CS 280 Assembly Language Programming 3-3

A study of the basic operation of a computing system at the assembly language level. A detailed knowledge of an assembly language and an enhanced understanding of higher level languages are course objectives.

One of the available computer systems will be selected for an indepth study and for programming applications. The course content will include: console operation, loading routines, numerical and character representations, mnemonic operations, instruction formats, location counters, relocation, literals, error flags, addressing modes, parameter passing, subroutine linkage, macros, conditional assembly, device controllers, character-to-integer conversion, and simple data structure realizations.

Before taking this course, the student should have programming experience in at least one higher level language and should be familiar with the general processes within a computing system. This is a required course for all computer science majors and is recommended for others desiring an in-depth knowledge of the internal functioning of a modern computer.

***CS 300 Introduction to Systems 3-3**

A study and analysis of the fundamentals of systems analysis and the ways it is used to study the network of interactions within an organization and assists in the development of new and improved methods for performing necessary work. After completing this course, the student is able to contribute to the systems analysis function within an organization and to integrate data processing activities with the identified objectives of the organization.

Topics include: systems analysis, problem definition, data collection, alternatives, feasibility studies, proposals, prototype systems, implementation and follow up. Included are case studies and project work.

Prior to taking CS 300, the student should have had programming experience with a higher level programming language that included the use of multiple data files and introductory courses in an application area such as business or economics. Otherwise the student should have experience with upper level application area courses with at least one course in higher level programming.

***Courses marked by an asterisk are not offered on a regular basis.**

CS 310 Operating Systems 3-3

This course continues the topics which were introduced in CS 280 and presents an overview of I/O management and job scheduling in a multiprocessing system. It is intended for the advanced student who has a strong interest in computer science and is required of all computer science majors.

After completing this course, the student should be able to read and understand manuals for any third generation computer system and directly apply them to programming problems.

The course content will include: concepts of a process, interprocess communication and protection system file structures, protection and maintenance of device directories, scheduling algorithms, system state tables, request queues, memory management, and graceful degradation. Programming problems will involve the design and implementation of systems program modules. **Prerequisite: CS 280.**

CS 320 Programming Languages 3-3

The objective of this course is to introduce the student to different concepts in higher level programming languages, and to gain experience in programming in more than one language.

BASIC, FORTRAN and other languages such as APL, LISP, and SNOBOL.

Prior to taking this course the student should have the ability to program at the assembly language level and have completed a course that included a study of data structures and a programming language such as PASCAL or PL-1. **CS 230 and CS 160 are recommended prerequisites.**

CS 370 Digital Electronics 4-5

A study of the design and application of electronic logic circuits including an analysis of sequential logic circuits using Boolean algebra and Karnaugh maps. Counters, registers, serial and parallel adders and arithmetic units are included.

The topics in the course include: Boolean algebra, algebraic simplification, Karnaugh map-

ping, Quine McCluskey method, combinational logic circuits, sequential logic circuits, comparison of TTL, MOS ECL logic families, the arithmetic unit, coding and decoding, parity detection and generators, multiplexers, demultiplexers. Extensive laboratory work supplements the topics studied.

Before taking this course the student should have an understanding of topics covered in a basic electronics course, including the operation of diodes and transistors, amplifiers, and oscillators. **Prerequisite: CS 250**

CS 380 Computer Organization 4-5
An analysis of digital computers in terms of their hardware and the interaction of the hardware and software within the machine.

Topics include: machine language programming, core memories, RAMS, ROMS, PROMS, methods of magnetic recording on tape, discs, ASCII coding, a typical mini-computer, bus structure, time, control, organization of a typical microprocessor, the 6800.

Before taking this course the student should have a good understanding of logic circuits, and have taken some courses in programming. **Prerequisite: CS 370.**

***CS 400 Project Management 3-3**
This course provides students with the opportunity to participate as a member of a project team in realizing solutions to a selected problem. Semester Hour credits will vary depending on the current project. Topics include: project planning, organization and staffing, project direction, control systems. This course is strongly computer orientated. Students who desire a more complete development of project management should investigate course offerings by other departments. **Prerequisites: CS 300 or equivalent and permission of instructor.**

CS 420 Compiler Construction 3-3
A study of the techniques involved in the analysis of source language and the generation of efficient object code.

Through an understanding of the process of language translation, the student will write efficient and reliable higher level language programs.

The course content will include: language definition and descriptions, lexical scan, syntactic analysis, operator and operand stacks, code generation and optimization, and execution of code. As a term project, each student will design, construct, and implement a compiler for a simple, structured language.

Before taking this course, the student should have facility in programming in a procedural language and familiarity with assembly language programming. All students are expected to have taken CS 230 and CS 280 and are advised to have taken CS 320. This course is recommended for all computer science majors, but will not be offered every year.

CS 440 Software Design 3-3
This course provides the student with an opportunity to obtain practical experience in the development of large software systems. Working in chief programmer teams, the students will design and implement one or more complex programming projects and will gain an appreciation for the importance of program specifications, top-down design, structured programming, documentation standards, and communication skills.

The project(s) undertaken in the course will vary and, whenever possible, will involve production programs in use in local industries. After an introduction to the problem to be solved, the class will be broken up into small programming teams, including: a chief programmer, a back-up programmer, a programming librarian and one or more applications programmers. The team will meet regularly to explore design alternatives and to modify program specifications as needed. Unlike industrial teams, the various positions will be rotated so that each student can experience more than one aspect of team management.

Before taking this course, the student should have considerable experience in programming in assembly language and structured programming languages, including CS 280 and CS 230. This course is recommended for all computer science majors but is not offered every year.

***Courses marked by an asterisk are not offered on a regular basis.**

CS 450 Microprocessor Laboratory 4-4
A detailed study of the microprocessor, and some of its applications. Emphasis is placed on the Motorola 6800, its hardware and software, and its associated family of integrated circuits in addition to the Intel 8085 microprocessor.

Students design a microprocessor system, configuring the random access memory, the read-only memory, peripheral devices using peripheral interface adaptor, as well as the combinational logic for the address decoding. The student will write software to control peripheral devices and program EPROMS for the control software.

The contents of course include: 6800 microprocessor, peripheral devices, instruction set, addressing modes, programming EPROMS, short introduction to the 8085 microprocessor.

Before taking the course, the student should be thoroughly familiar with digital electronics, and have some understanding of assembly language programming. **Prerequisite: CS 380, 280.**

CS 460 Topics in Computer Science 0-0
The objective of this course is to study a topic of current interest in computer science. This course serves as a vehicle for curriculum experimentation and/or enrichment.

After completing this course, the student should have an understanding of some current advance in computer science and/or greater understanding of a particular topic that is of current interest.

The background required of the student, prior to taking this course, depends upon the topic, but generally a background equivalent to about five prior computer science courses would be the minimum expected.

CS 470 Programming Practicum 0-0
This course provides an opportunity for a student, working under the direction of a participating faculty member to study or conduct research in an area not covered in other courses.

Typical areas of study include: computer graphics, compilers, operating systems, computer-aided instruction, microprogramming and data structures.

The background required of the student, prior to taking this course, depends entirely on the particular area of study or research. **Permission of the instructor is required.**

ECONOMICS

ASSOCIATE PROFESSOR: Caroline Murphy
ASSISTANT PROFESSOR: Nancy Wiegersma

A minor in Economics consists of EC 100 and 120 in addition to four courses selected from EC 130, 140, 150, 160, 300, or 320.

EC 100 Principles of Economics: Macro-economics 3-3
A study of the theory of employment, income and growth. Stabilization policy and current problems in American capitalism are emphasized.

EC 120 Principles of Economics: Micro-economics 3-3
A study of the theory of the business firm. Efficiency in the allocation of resources is examined under conditions of pure competition, pure monopoly, monopolistic competition and oligopoly. **Prerequisite: EC 100.**

EC 130 Consumer Economics 3-3
Theories of consumption and economic functioning, demand; consumer problems; standards of living; policies for protecting consumers and expanding consumption.

EC 140 Money and Banking 3-3
A study of the role of money, credit and banking in the American economy. Special emphasis is placed on the applicability of monetary policy to the problems of economic stability. **Prerequisite: EC 100.**

EC 150 Economic Development 3-3
An examination of the problems of growth with particular reference to less developed countries; topics of discussion include population, income growth, foreign investment and aid, allocation of resources, and the role of government. Investigation through case studies is emphasized. **Prerequisite: EC 100.**

EC 160 Public Finance 3-3
A study of the principles of governmental expenditures and revenues. Attention is also devoted to the problems of public debt, fiscal policy, and inter-governmental fiscal relations, with particular reference to the United States. **Prerequisites: EC 100 and EC 120.**

***EC 300 History of Economic Thought 3-3**
This course covers the work of the great economists within the framework of understanding the relationship between history and economic thought. From the roots of economic thought in the works of early philosophers, the course turns to the giants in political economy: Adam Smith, David Ricardo, Karl Marx, Alfred Marshall, J. M. Keynes. **Prerequisite: EC 100.**

***EC 320 Comparative Economic Systems 3-3**
This course covers the different economic systems operational in the world today. Emphasis is on differences between market or capitalist systems and socialist systems. The centrally planned economies are considered as well as the social democratic economies of Northern Europe. **Prerequisite: EC 100.**

EC 490 Independent Study in Economics
Open to students who have permission of the supervising instructor and the department. Course of study, meetings, and credit by arrangement.

EDUCATION

CHAIRMAN: Francis Powers
PROFESSORS: Patricia Barbaresi, Howard Kingsley, Robert Lee, Francis Powers, Elizabeth Ross
ASSOCIATE PROFESSORS: Anne Green, George Miller, Helen O'Flaherty, Robert Greene
ASSISTANT PROFESSORS: Richard Houston, Irene Passios

The degree of Bachelor of Science in Education, Early Childhood, must include ED 100, 210, 211, 220, 240, 310, 311, 384, 405; PY 110.

The degree of Bachelor of Science in Education, Elementary, must include ED 300, 303, 304, 360, 386, 410; PY 110, 221, 275; MA 283; BI 181; MU 100. The student must also supply fifteen plus semester hours toward an area of specialization. Recommended free electives are Music in Elementary Education, Art in Elementary Education, Principles of Guidance, Psycho-social Problems of Urban Children, Design, Preparation and Production of Instructional materials.

***Courses marked by an asterisk are not offered on a regular basis.**

Specialization for Elementary Major

All Elementary majors must select and complete a specialization from one of the following areas: Art, Behavioral Sciences, English, Foreign Language, Geography, History, Mathematics, Music, Physical Education or Science. Requirements for these specializations are found below.

Art Specialization

Students in the Elementary Curriculum who wish to specialize in Art may do so by electing courses under the guidance of the Art Department.

Behavioral Sciences Specialization

Students in the Elementary Curriculum who wish to specialize in Behavioral Sciences may do so by electing 24 semester hours under the guidance of the Behavioral Science Department.

English Specialization

Students in the Elementary Curriculum who wish to specialize in English may do so by electing 18 semester hours in English, 6 hours of which should be taken from the following courses: English Literature I, English Literature II, American Literature I, and American Literature II.

Foreign Language Specialization

Students in the Elementary Curriculum who wish to specialize in French or Spanish may do so by attaining the minimum proficiency level of FR 310 or FR 340 or SP 310 or SP 340 and taking either FR 288 or SP 488.

Geography Specialization

Students in the Elementary Curriculum who wish to specialize in Geography may do so by electing 15 semester hours of Geography under the guidance of the Geography faculty from the Geography elective offerings.

History Specialization

Students in the Elementary Curriculum who wish to specialize in History may do so by electing 15 semester hours of History under the guidance of the Social Sciences Department from the History elective offerings.

Mathematics Specialization

Students in the Elementary Curriculum who wish to specialize in Mathematics may do so by electing 21 semester hours of Mathematics under the guidance of the Mathematics Department. Interested students should contact the elementary specialist advisor in the Mathematics Department for information and advice in planning a program of study. Courses elected to fulfill the requirements of the mathematics specialization are usually chosen from among CS 100, MA100, MA 110, MA 120, MA 130, MA 150, MA 200, MA 210, MA 230, MA 240, MA 260, MA 300, MA 315 and MA 320.

Music Specialization

Students in the Elementary Curriculum who wish to specialize in Music may do so by electing the following under the guidance of the Music Faculty: MU 200, 220 (or equivalent), 420, 430, 440, 450, 480. Three semesters of any combination of MU 410 and/or 400. Two Music Electives.

Physical Education Specialization

Students in the Elementary Curriculum who wish to specialize in Physical Education should elect PE 308, PE 400, 401, PE 407 and 6 semester hours of physical activity skills.

Science Specialization

Students in the Elementary Curriculum who wish to specialize in Science may do so by electing 15 semester hours of science under the guidance of the Biology or Chemistry or Physics Departments.

Elect 15 hours from the following: BI 100, 110, 200, 210, 230, 260, 290, 310; CH 110, 120; GE 210; PH 110, 120.

ED 01 Personal Reading Improvement
Individualized reading programs are tailored to meet the particular needs of each student. Students experiencing difficulty in understanding what they read engage in programs stressing comprehension skills. Students with good comprehension but with slow reading rates receive assistance in acquiring skills to at least double their speed. Additionally, all students are given instruction in reading at different rates for different purposes.

Each student's program is completed after ten weeks or thirty hours of instruction. Students are free to select any three hours in the week—from 8:30 a.m. to 4:30 p.m. One credit per semester.

ED 100 Early Childhood Foundations 4-5
This course gives a brief orientation of the developmental philosophy and goals of early childhood education. Students will consider educational procedures used in facilitating the development of the child, explore the role of the teacher, the environment and the appropriate instructional strategies used with young children. Required of all Early Childhood majors.

ED 210 Reading in Early Childhood Education 4-5
The reading process and factors influencing the development of reading will be examined. Prereading and reading skills will be identified and techniques for assessment of skills will be presented. Methods and materials for teaching primary reading will be discussed and illustrated. A practicum in the reading area is required. **Prerequisite: ED 211.**

ED 211 Behavioral Science in Early Childhood I: Child Development and Observation 4-5
Study of principles, patterns, and theories of human development and learning as well as principles and techniques of naturalistic and standardized child study. Observation, recording, synthesis, and interpretation of the behavior of young children will occur within a practicum setting. Case studies will be written. Required of Early Childhood majors. **Prerequisite: General Psychology or Introduction to Psychology.** Required for ED 311.

ED 220 Language Arts in Early Childhood Education 4-5
An examination of the four components of verbal communication—listening, speaking, reading, writing; current materials and programs for developing language; use of literature in language and concept development; practicum for application of learning.

ED 240 Fine Arts in Early Childhood Education 4-5

This course studies the integration of art, music and movement for young children using an interdisciplinary approach. Investigation of the objectives, methods and materials in the fine arts areas.

ED 250 Pre-Kindergarten Clinical 4-5

This course provides an opportunity for those interested in working with pre-kindergarten age children to create a learning environment using free and inexpensive materials. Students will create learning devices, design the room layout, and develop program ideas. Learning activities with young children will be conducted under supervision. Day care and preschool licensing will be explored.

ED 270 Parent-Child Relations in Education 4-5

This course explores the role of the parent in the development of the child and how the parent relates to the educational system. This course will stress awareness of how parents stimulate the growth of behavioral trends in their children, as well as their usefulness as resources to improve the educational environment of the child.

ED 280 Integrated Creative Arts Teacher Education Program 15

This is a full-semester experience which includes five weeks of classroom instruction and training (creative work in visual arts, language arts, movement, music, and integrating art forms). Subsequent to the initial period, students will be placed in field stations for classroom experiences for the remainder of the semester. These activities will involve assisting teacher-specialists in one or more of the art form areas, and the development and implementation of programs for the specific classroom and its pupils so as to foster the pupils' personal expression through creation in the arts.

A weekly seminar on Wednesday afternoons from 1:00 to 3:00 will be held at the College for the purposes of workshop experiences and problem solving. Students are expected to be present in the schools on a full-time basis ordinarily throughout the semester. They will be visited and evaluated regularly by College faculty as well as by cooperating teacher-specialists in the schools.

ED 300 Principles and Practices of Elementary Education 3-3

An examination of the theoretical and practical knowledge of the teaching/learning process. Students will demonstrate competencies in the areas of planning, curriculum design, and evaluation. Focus will be placed on the needs and learning styles of the elementary school child and the instructional strategies used to effectively meet those needs. In addition, classroom management skills and techniques will be emphasized. A field experience is an integral part of the course. **Prerequisite: PY 221.**

ED 301 Successful Practices in Secondary Education 3-3

An opportunity to experience many teacher roles at the secondary school level. The student serves as a tutor in a public school, develops curriculum and instructional material, and designs, presents, and critiques a micro-lesson.

ED 303 Reading in Elementary Education 3-3

An examination of the reading process, methods of evaluation and strategies for beginning reading. Reading skills and procedures for developing these skills are examined and current approaches to the teaching of reading are evaluated. The student will be made cognizant of methods of grouping and evaluation procedures. A practicum is required. **Prerequisite: PY 221, ED 300.**

ED 304 Foundations of Education 3-3

A study of the professional aspects of teaching, the school's role in society, the organization and support of American education, the historical foundations of education and its philosophical bases. Issues affecting curriculum development and the future of American education are considered.

ED 305 Reading Diagnosis and Remediation 3-3

This course provides students with the competencies necessary to diagnose and correct reading problems in their own future classrooms and the skills of administering, scoring, and analyzing informal Reading Inventories. A practicum will be completed in which the student will test a child, plan a program of instruction for that child and carry out that program. Emphasis is also placed on the development and utilization of instructional materials with the assigned child. **Prerequisite: ED 210 or ED 303.**

ED 306 Methods and Materials in Early Childhood Education 3-3
A hands-on workshop and exploration of all areas of the curriculum. In doing so students will research and prepare games and devices appropriate to an early childhood classroom. Elective for all education majors.

ED 310 Science, Math, and Social Studies in Early Childhood Education 3-5
Emphasis is placed on the development and demonstration of instructional techniques and materials in science, math, and social studies that are appropriate for heterogeneous groups of young children.

ED 311 Behavioral Science in Early Childhood II: Learning and Assessment 4-5
Continuation of ED 211. (ED 211 and ED 311 cannot be taken simultaneously.)

ED 360 Social Studies in Elementary Education 3-3
This course will equip the future teacher with the knowledge, teaching strategies and sequential course development necessary to teach this critical area in the elementary school. **Prerequisite: ED 300.**

***ED 364 Reading in the Secondary School 3-3**
Investigation of the reading process. Discussion of current evaluative methods. Analysis of the reading skills and procedures for development. **Prerequisites: PY 223, ED 301.**

ED 384 Student Teaching in Early Childhood Education 12-25
Each student is required to have a full semester of student teaching consisting of two experiences, one in a kindergarten and a second at the primary level.

ED 386 Student Teaching in Elementary Education 12-25
Each student is required to have a full semester of student teaching consisting of two experiences at the elementary level.

ED 387 Student Teaching in Secondary Education 12-25
Students are assigned to cooperating schools for a semester of student teaching.

ED 400 Analysis of Reading Problems 3-3
The course will examine the correlates of reading problems, identify principles of diagnosis, and analyze, administer and interpret formal diagnostic tests. Students will demonstrate competency in preparing a case study report. **Prerequisite: ED 210 or ED 303.**

ED 405 Senior Seminar in Early Childhood 4-5
An examination of the historical perspectives and philosophical orientations in the field of early childhood education. Specific attention is given to an analysis of current issues and programs. Practicum experiences will be required. Required of Early Childhood majors.

ED 410 Language Arts in Elementary Education 3-3
This course provides students with an introduction to the nature of language and language growth. Emphasis is placed on the meaning and importance of language arts as well as focusing on the characteristics of elementary school age children that affect and are affected by the language arts program. Stress is placed on elements of writing, speaking, listening, spelling and handwriting. A field experience is an integral part of the course. **Prerequisite: ED 330.**

***ED 488 Introduction to Learning Disabilities 3-3**
A study of some of the causes of school learning disabilities at the Elementary level. Specific techniques and remediation exercises will be discussed.

ED 490 Independent Study in Education 3
Provides students in early childhood, elementary, and secondary education with the opportunity to do research with staff guidance in a problem in education. Limited to juniors and seniors. **Prerequisite: permission of Department.**

***Courses marked by an asterisk are not offered on a regular basis.**

ENGLISH

CHAIRMAN: William Barker
PROFESSORS: William Barker, Terry Grabar, Leo Hines, William Keough, Marilyn McCaffrey
ASSOCIATE PROFESSORS: Judith Budz, Erwin Pally, Louis Shepherd, Robert Welch
ASSISTANT PROFESSORS: Colin Bourn, George Case, Joseph Finkel, Marie McAllister, John McGrail, M. Irene Miranda, Robert Tapply, Eugene Cassassa
PART-TIME INSTRUCTOR: Dona Stein

The Bachelor of Arts in English (Literature) requires English Literature I and II (EN 220, 230) and at least 24 semester hours in English electives. Second year proficiency in a foreign language is required.

The Bachelor of Arts in English (Professional Writing) requires 36 hours in English, including English Literature I and II (EN 220, 230), Advanced Expository Writing (EN 450), and nine hours from the following courses: Discussion and Conference Techniques (SH 140), Public Speaking (SH 160), Journalism (EN 430), Journalism Practicum (EN 431, 432), Creative Writing (EN 380), Writing for Business and Technology (EN 441), Magazine (EN 433).

Also recommended are 6, 9, or 12 hours of internship.

The Bachelor of Science in Education, Secondary, in English requires English Literature I and II (EN 220, 230), Teaching Writing to Secondary Students (EN 470), PY 110, 223, 275; ED 301, 364, 387; and at least 18 hours of electives in English.

EN 001 Writing Skills Workshop
An intensive study of the basic writing skills. Cannot be taken simultaneously with either EN 100 or EN 120. One credit per semester.

EN 100 English Composition I **3-3**
Practice, both oral and written, in expressing ideas with precision, clarity, and economy. The research essay. Critical reading.

EN 120 English Composition II **3-3**
Essentially a continuation of EN 100, but more advanced. Introduction to literature and critical analysis: poetry, prose, and drama. **Prerequisite: a passing grade in EN 100. Prerequisite for all English electives: EN 100, EN 120.**

EN 200 American Literature I **3-3**
Representative American writers from Colonial days through the Civil War.

EN 210 American Literature II **3-3**
Representative American writers since the Civil War.

EN 220 English Literature I **3-3**
British writers from the Old English period through the 17th century.

EN 230 English Literature II **3-3**
British writers of the 18th and 19th centuries.

EN 240 World Literature I **3-3**
European literary masterpieces from the beginning through the middle of the 17th century.

EN 250 World Literature II **3-3**
European literary masterpieces from the mid-17th century to the present.

EN 260 The Bible as Literature **3-3**
A study of the style, narrative techniques, symbols, and historical setting of the Old and New Testament writers.

EN 280 Minority Literature **3-3**
Significant writings by American Indians and Black, Mexican, Puerto Rican and Oriental Americans: considered esthetically and as social and political documents.

EN 290 Children's Literature **3-3**
Focusing on a wide range of subjects with criteria for evaluation of books, for related library sources, for book fairs, and for school and classroom library needs.

EN 291 Literature for Young Adults **3-3**
Wide reading of literature written for the teenager. Different types of literature such as science fiction, fantasy, television plays, realistic novels and poetry will be read and criteria for their selection examined.

***EN 300 World Drama 3-3**
Significant and representative plays from the beginning to the modern period.

***EN 302 Modern Drama 3-3**
The works of such playwrights as Isben, Chekhov, Sartre, Brecht, Ionesco, Beckett, Pinter.

EN 310 The World Novel to 1914 3-3
Significant novels representing various countries and periods as well as stages in the development of this literary form.

***EN 311 The World Novel Since 1914 3-3**
Modern novels are studies both aesthetically and as human documents.

EN 320 The Short Story 3-3
Significant stories of some of the great writers of the Western world, showing the evolution of the short story form.

***EN 321 Telling the Tale 3-3**
English and American novels told by liars, children, gossips, novelists writing about themselves, uncaring and omniscient narrators. How point of view and value interact in fiction.

EN 325 Love and Hate in American Fiction 3-3
American writers and of the world of emotions in The Scarlet Letter, A Farewell to Arms, the Great Gatsby, Deliverance and others.

EN 330 Women and Literature 3-3
Emphasis on literature by and about women, including such authors as Ibsen, James, Stein, Woolf, Sexton, Plath and others.

EN 350 Literary Criticism 3-3
Critical theory and practice from Aristotle through the 20th century.

EN 360 Culture and Agriculture: The Pastoral Spirit Literature 3-3
A detailed examination of the countryside as a source of literary inspiration from Horatian concept of rural retirement to the post-industrialism of the late 20th century. Attention will be given to the current literature of the back-to-land movement.

***Courses marked by an asterisk are not offered on a regular basis.**

EN 370 Occult in Literature 3-3
Spiritualism, witchcraft, demonology, extrasensory perception and other areas of the occult found in the works of Scott, Walpole, James, Hawthorne, Shakespeare, Wilde and others.

EN 380 Creative Writing 3-3
For outstanding students who have completed EN 100 and 120. Upon approval of instructor.

EN 390 The Cinematic Eye 3-3
An exercise in esthetics through Super-8 film making. Rockbottom cost and minimally gadgeted cinematography. Emphasizes self-discovery through creativity. An aid in teaching. Student supplies his own materials.

EN 400 The Middle Ages 3-3
A study of the many different forms the literature of the British Isles took before Shakespeare.

EN 401 Chaucer and His World 3-3
Emphasis on the Canterbury Tales and their Medieval background.

EN 402 Shakespeare I 3-3
Shakespeare's vision of politics, society, and history. Studies in the chronicles of English history and the image of heroism and kingship.

EN 403 Shakespeare II 3-3
Shakespeare's vision of human destiny. Studies in the Comic and the Tragic.

***EN 404 Major English Writers of the 17th Century 3-3**
The drama of Johnson, Webster, Middleton, Congreve; the poetry of Milton Jonson, Donne, Herbert, Herrick, Marvell and Dryden; the prose of Browne and Dryden.

EN 405 The Novel in the Eighteenth Century 3-3
The origins of the novel in England and its development as a reflection of the tastes of a rising middle class. Defoe, Richardson, Fielding, Johnson, Austen and others.

EN 406 The Age of Satire: 1700-1750 3-3
Emphasis on the importance to the age of standards in life as well as in literature, the public responsibilities of the writer, and the various ways that humor is used as a weapon for social purposes.

EN 407 From Classic to Romantic: 1750-1800
Changing values in philosophy, the nature of man, politics, etc. The reflection of these changes in the art and music as well as the literature of the late 18th Century.

EN 408 The Romantic Self 3-3
The pursuit of individual vision in works of romantic writers including romantic poetry and Gothic novels.

EN 409 The Nineteenth-Century English Novel 3-3
Significant novels demonstrating the changing cultural milieu and varying approaches of the genre during this period.

EN 410 Belief and Doubt 3-3
Man's relationship to a changing society in the face of nineteenth-century industrialization and scientific progress, as seen in the major writers of the period.

EN 411 Decadence and Transition 3-3
The Wilde 90's, Edwardian exuberance, and World War I collated with modern trends in poetry, prose, and drama.

EN 412 Twentieth Century Irish Fiction 3-3
From James Joyce through Brian Moore, including O'Faolain, O'Connor and O'Brien.

EN 413 20th Century Irish Drama and Poetry 3-3
Poets, from Yeats through Montagne, Kinsella, Heaney; Playwrights, from Synge and O'Casey through Beckett and Friel.

EN 414 Modern Poetry 3-3
Representative modern poetry with the emphasis on American and English poets.

EN 420 The Romance in America 3-3
Nature, idealism and community in the works of Hawthorne, Poe, and others.

***EN 421 Major American Writers of the Twentieth Century 3-3**
The varied creativity of American writers of fiction, drama, poetry, criticism, and the essay since World War I.

***EN 422 American Novel 1890-1950 3-3**
A close examination of several representative works by major American novelists of this period.

EN 423 American Novel since 1950 3-3
A close analysis of seven or eight major novels.

EN 425 The Gatsby Myth 3-3
Money, love and status in the novels of the 20's and 30's: Fitzgerald, Hemingway, Wolfe and Dreiser.

EN 430 Journalism 3-3
Readings in the mass media with individualized writing assignments. Some emphasis on the technical aspects of newspaper work and the methods of New Journalism.

EN 431 and 432 Journalism Practicum: (P1 and P2) 3-3
Open to members of the Rhetoric staff, and other students engaged in appropriate on-campus or off-campus journalistic activities. (P1 and P2 may be taken separately for a total of 6 credits.)

EN 433 The American Magazine 3-3
A close study of significant American magazines: their editorial policies and requirements, audience slant, advertisements, visual layouts.

EN 440 Writing for the Natural and Social Sciences 3-3
Individualized work in writing appropriate for those taking courses in physical and life sciences, psychology, human services, and other social sciences.

EN 441 Writing for Business and Technology 3-3
A study of writing for students interested in Business and Management.

EN 450 Advanced Expository Writing 3-3
For those who have completed English Composition I & II but wish more training in effective writing.

EN 460 The Structure and the Nature of Language 3-3
The study of language systems and grammatical theories; history of the English language; theories of acquisition; psycholinguistic and sociolinguistic topics.

***Courses marked by an asterisk are not offered on a regular basis.**

EN 470 Teaching Writing to Secondary Students 3-3
Practice and research in alternatives for teaching writing in secondary schools. A study of writing as "process." Explores a variety of approaches through experiments for the teacher and opportunities to test these approaches in prepracticum experiences.

EN 488 The Teaching of English 3-3
The methodology of English (lesson planning, selection of materials, curriculum development, review of relevant research). Offered in fall semester only. **Prerequisite: CM 020.**

EN 489 Internship 12 SH
Students will be placed in local agencies or businesses involving journalistic or broadcast skills.

EN 490 Independent Study 3-3
For English majors excelling in scholarship, upon approval of both department head and advising instructor.

EN 492 Seminar 3-3
Literary analysis and research, topic to be selected by instructor. Primarily for English majors, others admitted with permission.

EN 498 Student Teaching in English 6-6
Student Teaching Practicum in English. Students are assigned to cooperating schools for a semester of student teaching.

ENVIRONMENTAL SCIENCE

INSTRUCTOR: Howard Thomas

The Bachelor of Science in Biology/Environmental Science includes all requirements of the Bachelor of Science in Biology. Additional requirements are six semester hours of earth science or geology, a course in computer science, ES 100, ES 270, and three semester hours of electives in Environmental Science. The major recommends that EC 104 Environmental Law, and Urban Planning be used to fulfill the social science requirement and PL 100, EN 440, and that photography or drawing course be used to fulfill the humanities requirements in General Education.

Since not all courses are offered in any one year, the student interested in Biology/Environmental Science is urged to consult closely with his/her advisor to design in advance a suitable selection and sequence of both required and elective courses.

ES 100 Seminar in Environmental Science 1-1
Offered: Fall and Spring Semesters. Survey of the practical scope of environmental science with special reference to the variety of activities performed by environmental scientists and the academic preparation and performance expected by potential employees. Relevance of various disciplines to career preparation. Lectures, films, visits to private and governmental agencies, seminars and symposia by students, faculty and visiting representatives of government and industry. One hr. per week plus occasional additional hours.

ES 200 Adaptations 3-3
The human organism is examined in terms of its adaptation to acute and chronic stress. Physiological responses to such stressors as exercise, heat, and dark, altitude and nutrition are studied theoretically and in a laboratory setting.

ES 280 Internship in Environmental Science 3-6 SH
Work experience in private or governmental concerns. Offered: Fall and Spring semesters. Assignments depend on needs of participating organization and the interests and abilities of the student. **Prerequisites: Junior or senior standing and permission of the Environmental Science Committee.**

FRENCH

ASSOCIATE PROFESSORS: Pierre Pinet, Jeanne Hambright

The Minor in French

The minor in French will require a minimum of 15 semester hours. Students must take Intermediate French I and II or be able to demonstrate proficiency at that level. Elementary French will not count toward the minor. After demonstrating intermediate level competency, the student may take a combination of courses in French literature, composition, or culture which will yield the requisite 15 hours of credit. For those students starting French above the intermediate level, FR490 Advanced French Independent Study, may be repeated for credit.

FR 100 French for Beginners I 3-4
Correct pronunciation, reading ability and fundamentals of grammar and syntax. French gradually becomes the working classroom and laboratory language. For students with no language experience or less than two years high school level. Students with two or more years not admitted without permission of instructor.

FR 110 French for Beginners II 3-4
A continuation of FR 100.

FR 200 Intermediate French I 3-4
Conversation and laboratory practice; readings stressing life, customs and culture of France. **Prerequisite: two years of high school, French II and/or Instructor's permission.**

FR 210 Intermediate French II 3-4
A continuation of FR 200.

***FR 288 Methods for Teaching French in the Elementary School 3-3**
Techniques and materials for use in elementary school. Required for foreign language specialization. **Minimum of 12 semester hours of French or its equivalent and Instructor's permission is required.**

FR 300 French Civilization 3-3
The history, geography, fine arts and literature of the French people from the earliest times through today. Extensive readings in French. **Prerequisite: FR 210 or instructor's permission.**

***FR 330 French Literature I 3-3**
A survey of the main currents of French literature from the Middle Ages through the 18th century. **Prerequisite: FR 210 or Instructor's permission.**

FR 340 French Literature II 3-5
A continuation of French Literature I.

FR 490 Advanced French Independent Study 3-3
Prerequisite: Minimum of 12 semester hours. 2.0 grade-average in French, and permission of Instructor, Department Chairman.

***Courses marked by an asterisk are not offered on a regular basis.**

GEOGRAPHY

PROFESSOR: James Barbato
ASSOCIATE PROFESSORS: Robert Champlin, Robert Gardula

The degree of Bachelor of Science and Bachelor of Arts in Geography must include GE 100 and 36 semester hours in one of the following areas: Earth and/or Environment Science, Urban-Community development and/or Public Service, or Area Development. Courses are structured so as to prepare the student for employment or graduate work. The Bachelor of Arts degree requires foreign language proficiency at the second year college level.

The degree of Bachelor of Science in Education, Secondary, in Geography must include GE 100, 88; PY 110, 223, 275; ED 301, 387; CM 020; and 27 semester hours in Geography electives. Students may meet the state certification requirement for teaching Earth Science, as well as Geography, by taking 18 semester hours in related courses which should be chosen after consultation with a member of the geography faculty.

GE 100 Introduction to Geography 3-3
The interrelationships between the physical and cultural elements of man's environment.

GE 110 Principles of Human Geography 3-3
An introduction to the elements and processes underlying economic, social, and political geographic patterns, with applications to actual case studies and situations.

Physical, Earth, and Environmental Courses

GE 130 Earth, Sea and Air 3-4
Selected topics from the earth sciences. A laboratory science.

GE 210 Geology 3-4
An introductory survey of the basic elements of physical and historical geology. Laboratory required. Open to all students. GE 100 strongly suggested.

GE 400 Atmospheres I—Meteorology 3-3
Fundamental principles of weather systems. Emphasis will be on mid-latitude and tropical cyclones, convective phenomena and weather modification.

GE 410 Atmospheres II—Climatology 3-3
Regional differentiation of the climatic zones of the major land and ocean areas of the world. Special attention will be given to urban climatology and the energy and moisture climatology of the earth. **Prerequisites: GE 400 Meteorology or permission of the Instructor.**

GE 420 Geomorphology 3-3
A comprehensive study of land forms and their origins. **Prerequisites: GE 210 Geology or permission of the Instructor.**

GE 430 Oceanography 3-3
A study of the physical and chemical properties of sea water, atmosphere interaction with the sea surface, currents and volume flow, the energy budget of the oceans, and the submarine geology of the ocean basins including a thorough discussion of ocean floor spreading. **Prerequisites: 6 hrs. in Geography, Earth Science, or the Natural Sciences.**

GE 460 Selected Topics in Environmental Geology 3-3
Basic principles of geology and geomorphology will be applied to the study of environmental problems caused by such natural phenomena as earthquakes, landslides, flooding, groundwater contamination, pollution, pollution caused by the mining and use of fossil fuels, etc. Data from actual events will be studied and utilized when considering the special problems these natural events cause to man. **Prerequisites: GE 210 or GE 420 or the equivalent.**

GE 470 Geographic Perspectives on Conservation 3-3
An analysis of natural resources problems arising from changes in technology, population pressure, and concern with the quality of environment. **Prerequisite: GE 100.**

Economic and Cultural Geography

GE 300 Economic Geography 3-3
Analysis of factors underlying the spatial distribution of primary, secondary, and tertiary economic activities, with emphasis on locational processes in commercial economics.

GE 310 Political Geography 3-3
Dependent and independent political units, boundary disputes, strategic areas, buffer zones and the function of international organizations.

GE 340 Developing Nations 3-3
Analysis of demographic processes and population characteristics relative to resources in economically underdeveloped countries and regions. Involves both a systematic and regional view of world population problems.

GE 440 Urban Geography 3-3
Analysis of the external relationships and internal structure of cities, with emphasis on the spatial attributes of contemporary urban qualities and problems in America. Classroom activities are supplemented by applied studies in the greater Fitchburg-Leominster area.

Methods and Techniques

GE 450 Remote Sensing of the Environment 3-3
Techniques in the use of maps, satellite and aerial photos as applied to landscape analysis and resource management.

GE 480 Cartography 3-3
Techniques of presenting data via mapping and field survey. **Prerequisite: Permission of the Instructor.**

GE 488 Special Methods in Teaching Geography 3-3
Lesson planning, selection of materials, curriculum development, review of relevant research. **Prerequisite: CM 020 and ED 301.**

U.S. and Foreign Area Studies
Regional and systematic analysis based upon geographic elements influencing domestic evolution and international relations. **Prerequisite: GE 100.**

GE 320 U.S. and Canada 3-3

GE 330 Latin America 3-3

GE 350 Europe 3-3

GE 360 Asia 3-3

GE 380 Africa 3-3

GE 490 Independent Study in Geography
Provides exceptional students the opportunity of research with faculty guidance in a subject or problems of geographic significance. **Prerequisites: 12 hrs. of Geography and permission of Instructor.** Hours and credit by arrangement.

GE 498 Student Teaching in Geography 6-6
Student Teaching Practicum in geography. Students are assigned to cooperating schools for a semester of student teaching.

GE 499 Student Teaching in Earth Science 6-6
Student Teaching Practicum in earth science. Students are assigned to cooperating schools for a semester of student teaching.

***Courses marked by an asterisk are not offered on a regular basis.**

GERMAN

PROFESSOR: John Burke
ASSOCIATE PROFESSOR: Jeanne Hambright

The Minor in German
The minor in German will require a minimum of 15 semester hours. Students must take Intermediate German I and II or be able to demonstrate proficiency at that level. Elementary German will not count toward the minor. After demonstrating intermediate level competency, the student may take a combination of courses in German literature, composition, or culture which will yield the requisite 15 hours of credit. For those students starting German above the intermediate level, GR 490 Independent Study, may be repeated for credit.

GR 100 German for Beginners I 3-4
Correct pronunciation, reading ability, and fundamentals of grammar and syntax. German gradually becomes the working classroom and laboratory language. **Students with two or more years not admitted without permission of the instructor.**

GR 110 German for Beginners II 3-4
A continuation of German 100.

GR 200 Intermediate German I 3-4
Conversation and laboratory practice; readings stress the life, customs, and culture of Germany. **Prerequisite: Two years of high school German or GR 100 and GR 110.**

GR 210 Intermediate German II 3-4
Continuation of GR 200.

***GR 300 German Civilization 3-3**
The history, geography, fine arts and literature of the German people from earliest times to the present. Extensive readings in German. **Prerequisites: GR 210 or permission of the Instructor.**

***GR 330 German Literature 3-3**
Representative works of German literature from the Niebelungenlied to the Tin Drum. Conducted in German. **Prerequisites: GR 210 and/or instructor's permission.**

***GR 350 German Conversation and Composition 3-3**

This course is designed to increase the student's ability to write and speak German. Students will be expected to write compositions on topics developed orally in class. **Prerequisites: GR 210 or permission of the instructor.**

***GR 360 Modern German Literature in Translation 3-3**

An introduction to the varied creativity of German writers of fiction, drama, and poetry of the 20th century. The German film contribution of the 1920's with feature-length films will be included. Readings will be in translation and the course will be conducted in English.

***GR 370 Modern German Culture: "The Road to Hitler" 3-3**

Given in English. An examination of the cultural factors in music, art, literature and film which illuminate the events leading to National Socialism. Readings will focus to translated materials especially in literature which help to explain why the Germans embraced Adolph Hitler. Includes a significant audio-visual component.

GR 490 Independent study in German

Open to students in he language with the permission of the supervising instructor and the Department Chairman. Meeting times and credit by arrangement.

HISTORY

PROFESSORS: Muriel McAvoy, George Merriam, Donald Norton, Edmund Thomas
ASSOCIATE PROFESSORS: Lawrence Arnold, Pasquale Micciche
ASSISTANT PROFESSORS: Norman Carson, John Clark, Douglas Hebb

The Bachelor of Science and Bachelor of Arts in History must include HI 110, 112, 210, 220, 400; one course from HI 180, 190, 407, 408, 401, 260 or 460; one elective from European History; one elective from U.S. History; and an additional 6 semester hours of History electives. The Bachelor of Arts requires foreign language proficiency at the second year college level.

***Courses marked by an asterisk are not offered on a regular basis.**

Candidates for the Bachelor of Arts may choose their minor from either the Humanities or the Social Sciences. Candidates for the Bachelor of Science may choose their minor from either the Social or Behavioral Sciences. Fifteen semester hours of courses are required for a minor. A Bachelor of Arts in History with a concentration in European Studies must include HI 110, 112, 210, 220 and 12 semester hours of History electives of which at least 9 semester hours are in European History and 15 semester hours of related courses of which at least 3 semester hours each in the areas of Geography, Art, Philosophy and Literature. The latter courses must be chosen from the list of courses applicable to the European Studies concentration. This degree must also include proficiency in a modern European language at the third year college level.

A Bachelor of Science in Education, Secondary, in History must include PY 110, 223 and 275; HI 110, 112, 210, 220, 400, 488; one course from HI 180, 190, 407, 460, 260; one elective from European History; one elective from U.S. History; and an additional 9 semester hours of History or courses related to History. The latter includes government, political science, economics, history or literature. The major must also include ED 301, ED 387, and EN 470.

HI 110 Modern European History I 3-3

The evolution of modern European ideas and institutions from the Renaissance to the Napoleonic era. Political events, selected biographies, topics in cultural history, and economic and social changes.

HI 112 Modern European History II 3-3

Political developments, ideologies such as socialism and nationalism, the impact of science and technology, and the changing relationship of Europe to Africa and Asia.

HI 130 Medieval Europe 3-3

Major characteristics and institutions of medieval civilization. Within a chronological framework of political events, attention is given to topics in art, literature, philosophy, and religion.

HI 140, 150 British History 3-3 each semester
The first semester covers the development of English government and culture from the earliest times to the reign of Queen Elizabeth I. The second semester covers from 1603 to the present with emphasis on parliamentary government, the industrial and agricultural revolutions, the evolution of the British Empire and Commonwealth, and the position of Britain today.

HI 180 History of Mexico, Central America and the Caribbean 3-3
Both HI 180 and 190 survey pre-Columbian and colonial backgrounds, the clash and fusion of cultures, and the evolution of today's Latin American civilizations as they relate to specific geographical areas.

HI 190 History of South America 3-3
See HI 180.

HI 200 Introduction to Family History 3-3
An introduction to the study of change in the structure and function of the family, especially under the impact of industrialization and urbanization. Emphasis in readings upon the psychological, sociological, and historical evolution of the family as an institution. Interested students may write their own family histories in conjunction with the Anonymous Families History Project of the Family Institute University of Minnesota.

HI 210, 220 United States History I and II 3-3 each semester
A survey of the United States History beginning with colonial times and continuing through the era of Reconstruction following the Civil War the first semester. The second semester covers from Reconstruction to the present.

HI 230 American Women, 1870-1970 3-3
Women in modern America, the struggle against discrimination and for the ballot, the history of various women's groups, including working class, black, and immigrant women. Not merely the study of exceptional women but women as housewives, breadwinners, and citizens.

HI 250 Irish History, 1798-1850 3-3
The Rebellion of 1798 and the Act of Union; O'Connell and Catholic emancipation; the rise of Irish nationalism, the great famine of 1845-50.

HI 251 Irish History, 1850 to the present 3-3
The Home Rule movement; Parnell and the land league; the Celtic revival; the rebellion of 1916 and the civil war; the Republic of Ireland and Ulster in the twentieth century.

***HI 260 Africa 3-3**
Sub-Saharan Africa from the earliest man to the 1960's. The development of trading empires and African cultures. The impact of Europe's "scramble for Africa." The struggle for independence and the launching of new nations.

HI 300 American Colonial History 3-3
Exploration, settlement patterns, imperial system, social structure, rise of representative government in America, and the 18th-century wars for empires.

HI 311 The American Revolution 3-3
The coming of the Revolution, war tactics and strategy, problems of the Confederation period and the American Constitution.

HI 312 The Age of Revolutions 3-3
Major political, social, and cultural developments in France, England, and the United States during the age of the American, French, and Industrial Revolutions, 1763-1848. The meaning and applicability of the term "revolution" will be examined, and there will be a series of case studies of topics such as art and politics, romanticism, and the religious revival in England. Extensive use is made of audio-visual materials.

HI 313 Twentieth-Century Europe 3-3
From the first World War to the present. Cultural, scientific, and social developments as well as domestic and international politics.

HI 320 The American Civil War and Reconstruction 1850-1865 3-3
Politics, slavery, and Lincoln's rise to power; political, military and diplomatic aspects of the war; failure of reconstruction.

HI 330 Reform, Depression, and War, 1900-1945 3-3
The Progressive Era, World War I, the "Roaring Twenties", the Great Depression, the New Deal, and World War II.

***Courses marked by an asterisk are not offered on a regular basis.**

HI 340 Cold War America, 1945-1976 3-3
From Truman to Carter: the Cold War, Korea and Vietnam, the counterculture of the sixties.

HI 350 History of the Money Machine in the West, 1400-Present 3-3
A study in some depth of the evolution of money and banking in the Modern West with particular attention to the American experience. The concern is with the social and/or private purpose of these tools of exchange. **Prerequisite: Modern European History I and II, U.S. History I and II. tory I and II.**

HI 351 American Labor, 1840-1960 3-3
A study of the patterns, personalities and social tensions involved in the responses of American Labor to the changing economic construction: from the pre-industrial society through the industrial to the post-industrial. **Prerequisite: U.S. History I and II.**

HI 360 United States Industrial History I 3-3
The industrialization and urbanization of the United States from colonial times to 1870.

HI 371 United States Industrial History II 3-3
A continuation of HI 360 from 1870 to the present.

HI 380 History of the South 3-3
Slavery, the Confederacy, Reconstruction. Development of the Solid South, the Negro, and Civil Rights from a Southern view.

HI 390 Federalist Era 1789-1828 3-3
Early American nationalism with stress on the first American party system; economic nationalism, and foreign policy declarations. **Prerequisite: HI 210.**

HI 391 Student Teaching in History
Student Teaching Practicum in history. Students are assigned to cooperating schools for a semester of student teaching.

***HI 400 Historiography 3-3**
An introduction to the historical method with stress on bibliographical aids, historical fallacies, and the theories of history as they have developed. Primarily for history majors.

HI 401 Modern German History 3-3
Germany since 1500 with emphasis on the last two centuries and its role in international politics.

HI 403 The U.S. In World Affairs: 1898 to the Present 3-3
The age of imperialism, World War I, the era of "isolation," origins of World War II, American involvement and wartime diplomacy, breakdown of East-West relations, the Cold War, the Korean and Viet Nam conflicts.

HI 407 Imperial Russia 3-3
Founding of the Kievan State; the Mongol, Muscovite, and Imperial Periods to the Revolution of 1905.

HI 408 The Soviet Union 3-3
The Bolshevik seizure of power; attempts to implement Marxist theory; institutional development of the state, family education, and education.

HI 409 Oral History 3-3
An introduction to the collection of oral historical experience. Students work on tape-recording such experiences as the depression, immigration, etc. Each student learns the use of the tape recorder, interviewing, and the techniques of indexing and cataloguing.

***HI 410 The Frontier in American History 3-3**
The Frontier studied as a historical, social, economic, and psychological process to determine its impact on American development.

HI 420 The Republican Era, 1877-1912 3-3
Major movements of the late nineteenth and early twentieth centuries in United States History including Grangerism, Populism, urbanization, trade unionism, socialism, and progressivism.

HI 430 U.S. Foreign Relations: The First Hundred Years 3-3
Diplomacy of the Revolution, foreign relations of the new nation, the Monroe Doctrine and problems of boundaries and expansion, the Civil War and after to about 1890.

***Courses marked by an asterisk are not offered on a regular basis.**

HI 450 Tudor England 1485-1603 **3-3**
Political, social and religious developments from Henry VII to Elizabeth I. The Reformation, the rise of Puritanism, foreign affairs, constitutional developments.

HI 451 Stuart England 1603-1689 **3-3**
Political, social, religious and constitutional developments from James I to William and Mary. Opposition to the early Stuarts, the civil war, the restoration and revolutionary settlements. Events of Irish and Scottish as well as English history.

HI 460 Contemporary Latin America **3-3**
Latin America since World War II. A study of economic, cultural and political trends, agrarian reform and economic development.

HI 463 History and Culture of Puerto Rico **3-3**
Political social, economic, and cultural development of Puerto Rico from its beginnings to the present. The blending of Indian, African, Spanish, and Anglo-American traditions into a uniquely Puerto Rican culture.

HI 470 Film as History **3-4**
An analysis of the issues raised in the use of film as historical evidence. Journalistic and historical accounts of events are compared and contrasted with film treatments, particularly feature films and documentaries.

***HI 480 Black America** **3-3**
An investigation of the cultural heritage and historical development of the black man in the United States from his West African origins to the present. Emphasis on understanding of prejudice and race relations.

HI 488 Special Methods in Teaching of History **3-3**
Special techniques for the teaching of history and their relationship to the principles of general methods. **Prerequisite: ED 301.** Offered each year in the fall semester.

HI 490 Independent Study in History
Open to students majoring or specializing in history with the permission of the supervising instructor and the department. Meetings times and credit by arrangement.

HUMANITIES

CHAIRMAN: John Burke

The Humanities Department offers courses in art, foreign languages, music and philosophy. These courses may be found under Art, French, German, Music, Philosophy, Russian, Spanish.

HUMAN SERVICES

COORDINATOR: David C. Maloney
PROFESSOR: E. Arthur Garvin, Donald M. Isaac
ASSOCIATE PROFESSORS: David C. Maloney, Richard J. Spencer
ASSISTANT PROFESSOR: Cynthia Tower
INSTRUCTOR: Mary King

The Human Service program at Fitchburg State College is an interdisciplinary major administered by the Department of Behavioral Sciences in cooperation with the departments and areas of Special Education, Nursing, Business Administration, Environmental Science, Geography, History, Philosophy, Economics, Biology, Physical Education, Vocational Education, Education, Career Education, Modern Languages, English, Computer Sciences, Communication/Media, Speech, and Political Science. This interdisciplinary approach allows students to develop the broad background necessary in working with people in need of help. The student will obtain a B.S. in Human Services preparing him/her for work in a variety of settings in the helping professions at entry level positions and/or for graduate study.

Aims and Objectives

Students in the Human Services program will gain theoretical and conceptual knowledge. They will also learn and practice actual helping skills in the field. Students learn basic concepts and skills at the college and then have the opportunity to put these skills into practice under supervision in community settings. The combination of knowledge and skills developed under this program will enable the student to be a more effective worker in the field.

The Human Services program meets the needs of both the students and the community. Students will get the training they need so they will be able

to fulfill career goals and to compete successfully in the job market. The community is served through trained personnel who meet demands for increased social services in our society.

Among the special characteristics of Fitchburg State's program, in addition to the interdisciplinary approach, is the co-ordination of supervised work experiences with academic studies. This experience involves working in agency settings under professional supervision in conjunction with human service course work taken at Fitchburg State College. This gives students experience which should strengthen their position when applying for jobs; it gives them a more realistic basis for choosing a career, and it gives potential employers an opportunity to screen students based on job performance. Students are also encouraged, throughout their stay at Fitchburg State College, to gain experiences through volunteer activities.

Admission and Retention Policy

A student may enter the Human Services Major by either declaring it as a major upon admission to the college or as internal transfer (transferring into the Human Services major from another major within this college). A student who has declared Human Services as a major upon admission (as a freshman or as an external transfer) will be subject to retention review by the Human Services Curriculum Committee following the completion of Introduction to Human Services. Retention will be based upon both academic and psychological readiness for the field. Entrance into the major as an internal transfer necessitates a 2.5 cumulative grade point average, successful completion of Introduction to Human Services, and psychological readiness for the Human Services field.

Program Structure

There are three components to the major:

A. *The Human Service Core (these courses are required for all majors)*
   HS 110 Introduction to Human Services
   PY 335 Abnormal Psychology
   HS 475 Interviewing Techniques
   HS 476 Methods of Case Recording and Analysis (Case Methods)
   HS 487/488 or 489 Field Work
   There are two Field Work options: (1) a Block Placement, for 12 credits, involving 30 hours/week in an agency for one semester (fall or spring); or (2) a two-day a week placement (15 hours) for two semesters (6 credits each) beginning in the fall and continuing until the end of the spring semester. *Since some agencies only accept one or the other option for placements, it is essential for a student to plan well in advance in order to know if placement will begin in the fall or spring, as well as, completing all pre-requisites to Field Work at least one semester prior to placement.*

Admissions into the Human Service Program does not guarantee entry into Field Work. Eligibility for Field Work will be based upon the successful completion of the following requirements:

1. Pre-registration for Field Work;
2. Completion of application for Field Work;
3. Maintaining a cumulative quality point average of 2.5 in prerequisite courses;
4. Demonstrated effectiveness in written and oral communication skills;
5. Positive recommendations by a majority of the faculty members in the Human Service major;
6. No incomplete grades in any courses, no probationary status, and no unresolved failure in the candidate's major field of study;
7. All transfer students must take 12 semester hours within the department prior to field work;
8. Successful preplacement interview with the Field Work Placement Supervisor;
9. Successful preplacement interview with the Agency Supervisor;
10. Submission of a completed Acceptance Agreement which is agreed upon and signed by the Field Work Placement Supervisor, the Agency Supervisor, and the candidate; and
11. Submission of a completed Student/Agency Field Work contract which is agreed upon and signed by the Field Work Placement Supervisor, the Agency Supervisor, and the candidate.

B. *Human Services Behavioral Sciences Area*

Students must take twelve credits in Psychology, Sociology and/or Human Services. These courses must be relevant to career goals and must be approved by a student's advisor and notation to that effect must be placed in the student's folder.

C. *Related Courses*

Students must take twelve credits in courses in departments other than Behavioral Sciences. These courses must be relevant to career goals and Field Work plans. This requirement may be fulfilled by taking courses in one or more departments, e.g. Business Administration, Computer Sciences, Special Education, Political Science, Economics, English, Biology, Philosophy, Physical Education, Speech, etc. These courses must be approved by a student's advisor. Notation to that effect must be placed in the student's folder.

Voluntary Experiences

It is to the student's advantage to gain experiences in agencies beyond those required in courses. The Volunteer Action Center may help in finding settings. Wherever students work, they should obtain letters of recommendation for their placement folders. This will aid students in course work at Fitchburg State College and also when applying for employment or graduate school.

Policy Concerning Human Service Major and Advisor Meetings:

There is a departmental policy concerning meetings called for majors and meetings with a student's academic advisor. The policy is that failure to attend departmental meetings called for Behavioral Science majors and/or failure to contact advisors may be grounds for a student's name to be dropped from the roster of those listed in the major.

***HS 110 Introduction to Human Services 3-3**

Principal goals for the course are to introduce the student to the scope and nature of human service agencies, their intervention models, and their professional staff. Particular focus will be made on the underlying philosophies, issues, and dynamics in social agency functions. Guest lectures from agency representatives, class simulations, agency critiques, and a required volunteer experience represent the priority activities in the course.

***This course is prerequisite to all Human Services courses.**

HS 115 Community Resources 3-3

This course will acquaint students with the variety of public (federal, state, and local) and private voluntary non-profit agencies which provide services for various populations (topics to vary by semester). Students will learn what services are provided, how to obtain services, how to make referral to these agencies and how the agencies are operated (including staffing, funding and administrative aspects of the agencies). Students will also be able to make more appropriate Field Work plans by knowing of the agencies in advance of Field Work. **Prerequisite: HS 110.**

***HS 220 Delivery of Human Services 3-3**

This course will deal with social agencies, how they establish their goals, priorities, programs; how they are governed, staffed and financed; and how each of these relate to the needs of the people in the area served. **Prerequisite: HS 110.**

HS 230 Introduction to Rehabilitation Counseling 3-3

An overview of the vocational rehabilitation process in the U.S., including its history and governing federal legislation. Emphasis on the medical, psychological, sociocultural, and vocational factors in rehabilitation of handicapped individuals. This course will focus on the role of the Rehabilitation Counselor as a professional in the rehabilitation process. **Prerequisite: HS 110.**

HS 240 Crisis Intervention **3-3**
This course focuses on the concepts and techniques of Crisis Intervention. Many individuals are faced with such crisis situations as job loss, unwanted pregnancy, divorce, operations, death and dying. Specialized short-term techniques have been developed to help people in these situations. Students will also be required to spend approximately 4 additional hours per week in a crisis center for supervised experiences. The Crisis Center may ask students for a commitment beyond the semester. **Prerequisites: HS 110, PY 335.**

HS 350 Introduction to Social Work **3-3**
Social Work is one of the central professions in the Human Services. This course will deal with the history, concepts, basic issues and techniques of social work including casework, group work and community organization activities. Advanced study and career opportunities will also be explored. **Prerequisites: HS 110, SO 110.**

HS 351 Social Casework **3-3**
This course will explore casework concepts and techniques as utilized in a variety of setting, e.g. family agencies, mental health settings, hospitals, courts. The focus will be on the casework process with individuals, couples and families. **Prerequisites: HS 110, HS 350, PY 335.**

HS 352 Social Group Work **3-3**
This course will focus on social group work as a method in social work; the relationships of social group work to other social work methods and to group therapies. These techniques are used in clinical settings, recreational settings and community organizations. **Prerequisites: HS 110, HS 350.**

HS 353 Community Organizations **3-3**
This course will focus on methods used in organizing citizen action groups to bring about change. Principles, methods and techniques of organizing, goal formulation, group maintenance, community planning and strategies will be studied. **Prerequisites: HS 110, HS 350.**

HS 354 The Abuse and Neglect of Children
This course will present an overview of concepts vital to understanding and working with the abusive and neglectful parent: including differentiation between abuse and neglect, reporting responsibilities, legal aspects, prognosis, prediction and the role of the community. Case studies will be used to enhance student understanding. **Prerequisites: HS 110, PY 110 and PY 220.**

HS 360 Human Services Administration **3-3**
This course involves management of Human Service agencies and programs. It will present an overview including agency organization, funding, staff supervision, working with boards of directors, private and public funding, program planning and evaluation, establishing service priorities for the agency, relationships with other agencies (local, state, and federal), grant writing, basic legal aspects, etc. **Prerequisite: HS 110.**

HS 374 Probation **3-3**
This course deals with the changing patterns in probation, the laws regarding probation, the job of the probation officer, the juvenile court system, pending legislation, and relations with other agencies. **Prerequisite: HS 110.**

HS 475 Interviewing Techniques **3-3**
Skill in interviewing is essential to the development of professional competence in the helping professions. This course is designed to help the student learn about the problems and processes of interviewing while developing basic skills needed to become an effective interviewer. The course will include assigned readings, class discussions, taped interviews, demonstrations, practice sessions in class. **Prerequisites: HS 110, PY 335 and permission of Instructor.** Students must preregister in the semester prior to the course.

HS 476 Methods of Case Reporting and Analysis 4-5

This course attempts to expose students to the technical and practical skills involved in the process of preparing, recording, presenting, and analyzing individual case reports. Case report applications, as they relate to schools, clinics, social service agencies, the courts, and other human service agencies will be integrated during the course. A supervised practicum in an approved agency setting (3 hr/wk minimum) is required. **Prerequisites: HS 110, PY 335, HS 475 and permission of Instructor.** Students must preregister in the semester prior to the course.

HS 487-488, 489 Field Work in Human Services 6-15, 12-30

The purpose of this course is to allow the student to demonstrate effective Human Service practices in the field. Further the course enables the student to obtain supervised experience working in a Human Services Facility (mental health clinic, hospital, family agency, social agency, welfare, nursing home, probation office, crisis center, recreation center, school counseling office, industry, etc.). These experiences will enable students to apply what they have learned in class, to understand the workings of agencies, and to explore career possibilities in the helping services. Students will work in an agency under the supervision of an agency staff member. In addition to the field experience, there are class meetings to share field experiences. There are two types of placements:

HS 487-488: students will work in an agency 15 hours per week throughout the school year, beginning in September. 6 credits each semester. HS 489: a block placement of 30 hours per week for one semester, either Fall or Spring. 12 credits, one semester.

Students must have completed their prerequisites at least 1 semester before taking Field Work and must pre-register with the instructor in the beginning of the semester prior to the semester before they plan to enter an agency, i.e., students planning a Fall placement must have completed their prerequisites by the end of the previous Fall semester and pre-register with the instructor early in the previous Spring. Students must have had previous volunteer experience prior to enrolling in Field Work. **Prerequisites: HS 110, PY 335, HS 475, HS 476, prior volunteer experience and permission of Instructor.**

HS 490 Independent Study

Independent Study is offered to outstanding students of Junior or Senior standing and requires approval of the professor and of the Chairman of the Behavioral Sciences department. Independent Study may take the form of special advanced reading programs or problem identification and research. Under no circumstances will independent study be substituted for regularly scheduled courses.

INDUSTRIAL TECHNOLOGY

CHAIRMAN: George B. James
PROFESSOR: George B. James
ASSOCIATE PROFESSORS: Howard Besnia, Stanley Bucholc, Joseph Carpenter, Robert Kokernak, Edward Martens, Philip Tardanico, Rene Thomas, Jack Wescott
ASSISTANT PROFESSORS: James Andrews, Stephen Baldwin, Joseph Farias, Erling Hanson, Lloyd Harte, Frederick Miller, Edson Phelps
INSTRUCTORS: John Previti, Joseph Solan

The Industrial Technology Program offers an opportunity for students to pursue three professional career options after completing a brief common core of experiences. This program includes the preparation of industrial arts teachers (Industrial Arts major), industrial technologists either for the field of engineering or business and industry (Industrial Science major). Students who plan to pursue a career as a technologist in the field of engineering must declare themselves to the "engineering" specialization during their freshman year. All other students in the department elect their major (Industrial Arts-teaching or Industrial Science-technology) at the end of their sophomore year.

The common core consists of IT 101, IT 201, IT 131, IT 111, IT 141 and IT 121. Two courses, IT 101, "Evolution of Industrial Technology" and IT 201, "Man/Technology/Society" makes students aware of the role of technology in our society and culture and are included as a part of the General Education requirements. The other four courses, which are included as a part of the Industrial

Technology Program introduce students to the major technical endeavors of mankind in the areas of Transformation, Energy, Communications and Materials.

INDUSTRIAL ARTS MAJOR

Students are required to complete 67 credit hours in their major which includes 18 credit hours in the common core. A total of 126 credit hours are required for a Bachelor of Science degree in Education.

During the Freshman year, students are required to take a technical mathematics course. By the end of the Freshman year, Industrial Arts majors must complete three credit hours in each of the following technical areas: Transformation (wood and metal); Energy (electrical and mechanical); Materials (organic and inorganic); and Communications (drawing and graphic arts). In addition, three credit hours each of applied chemistry and physics are also required during the sophomore year.

Six basic shop or lab courses are required in the sophomore year. They are Wood Fab Systems, Metal Feb Systems, Technical Drawing, Graphic Arts Communication, Electrical Systems and Circuits and Auto Energy Systems.

During the Junior year, students determine their goals related to one area of specialization. To achieve these goals, they work with faculty advisors in selecting modular and semester courses. The students are required to take at least 15 credit hours to achieve their goals. Nine credit hours in one area of specialization.

Students may enroll in the professional sequence (IT 480, IT 481, IT 482, IT 483, IT 484 and IT 485) at the beginning of the first semester of the Junior year or the first semester of the Senior year depending upon recommendations of the faculty. To enroll, students must have a 2.5 cumulative index in their major and have successfully completed a First Aid course. Also students must have taken PY 110 and PY 223.

INDUSTRIAL SCIENCE MAJOR: TECHNOLOGY

Students who wish to pursue the Industrial Science degree in order to work in the field of business and industry as technologists are required to complete 66 credit hours in their major which includes 12 credit hours in the common core. A total of 126 credit hours are required for the Bachelor of Science degree in Industrial Science.

During the Freshman year, students are required to take a technical mathematics course. By the end of the Sophomore year, Industrial Science: Technology majors must have taken IT 202, IT 205, IT 211, IT 212, IT 222 and IT 241. In addition, three credit hours each of applied chemistry and physics are also required during their sophomore year.

During the Junior year, students determine their goals related to one area of specialization. To achieve these goals, they work with faculty advisors in selecting modular and semester courses.

Depending on the interests and needs of each student and with approval from their faculty advisor, nine credit hours of professional courses will be selected. These nine credit hours constitute an individualized professional sequence in order to prepare the students for their business/ Industry experience. The nine credit hours may be selected from the following: BA 340, BA 300, BA 310, PY 240 and/or SO 365. During the Senior year, students take an Industrial experience and complete the 15 credit hours in their selected area of specialization. PY 110 and an economics course approved by the major advisor are also required for graduation.

INDUSTRIAL SCIENCE MAJOR: FIELD OF INDUSTRIAL TECHNOLOGY

Students are required to complete 66 credit hours in their major which includes 12 credit hours in the common core. A total of 126 hours are required for the Bachelor of Science degree in Industrial Science.

Prior to the Sophomore year, Industrial Science students should either take IT 151 or demonstrate a proficiency in Algebra, Trigonometry, vectors and some analytic geometry. In the Sophomore year students take IT 251, IT 254, IT 202, IT 253, and IT 356. In addition, students take eight credit hours of physics and three credit hours of computer programming. During the Junior year, students take IT 252, IT 351, and IT 353, and nine credit hours of technical electives. Also four credit hours of chemistry are taken. During the Senior year, students may work in industry as technologists and receive 12 credit hours or may take a sequence of technical courses approved by the work experience committee from PY 110, and an economics course approved by the major advisor are also required for graduation. Regardless of the major area chosen there are some tools and equipment requirements to be supplied by the student.

COMMON CORE

IT 101 Evolution of Industrial Technology 3-3
Study of the history of industrial technology, and the qualifications, duties, and responsibilities of related careers. A field based prepracticum experience is an integral part of this course. This experience may be in a school or industrial setting.

IT 111 Transformation 3-4
Introduction to the various aspects (design, industrial process, fabrication) of transforming raw materials to useful products.

IT 121 Communications 3-4
Introductory experiences in communications through the design and production of mass-media messages, with emphasis on the technology of communications.

IT 131 Materials 3-4
An overview of selected materials and their properties including laboratory experiences designed to give students an understanding of research with materials.

IT 141 Energy 3-4
An overview of energy technology dealing with its technical aspects.

IT 201 Man/Technology/Society 3-3
Study of universal characteristics of technology, including effects of technology on society and culture. Topics of interest are researched.

IT 270 Physics for Industrial Technology 3-3
This is a course in elementary Physics with particular emphasis on applications in the area of industrial technology. Topics include kinematics, statics, dynamics, work and energy, simple machines, fluid dynamics, and heat transfer.

MATERIALS

IT 231 Service Requirements of Materials 3-4
A study of the problems concerning the environmental effects on the properties and behavior of materials and the procedures which can be employed to minimize those environmental influences. **Prerequisite: IT 131.**

IT 232 Development of Industrial Materials 3-4
A study of procedures for converting raw materials into semi-finished products with consideration of properties developed as results of processing. **Prerequisite: IT 131.**

TRANSFORMATION

IT 211 Wood Fabrication Systems, Procedures and Techniques 3-4
Furniture is designed, constructed and finished. Advanced fabrication concepts and techniques are studied. **Prerequisite: IT 111.**

IT 212 Metal Fabrication Systems, Procedures and Techniques 3-4
Study of mass-production theory, systems, and procedures in metal. **Prerequisite: IT 111.**

IT 311 Designing and Planning Transformation Conversions 3-4
Elements of product design are experienced through problem solving. Drafting, human engineering and product analysis are incorporated in design and construction of prototypes. **Prequisite: IT 111.**

ENERGY

***IT 241 Automotive Technology 3-4**
An introduction to multi cylinder gasoline engines; systems include ignition, fuel, brake, drive line and valve train. **Prerequisite: IT 141.**

IT 243 or IT 256 Pneumatic and Hydraulic Energy Systems (Fluid Dynamics) 3-4
Flow phenomena of compressible and incompressible fluids are studied, including fluid statics and dynamics, boundary layers, conduit fluid flow, dynamic drag and lift. **Prerequisites: IT 141 and IT 151 or a Technical Mathematics course.**

COMMUNICATIONS

IT 205 Electric Systems and Circuits 3-4
Methods of producing, transmitting, controlling, and utilizing electricity. Emphasis on applications to energy and communications. **Prerequisite: IT 141.**

***IT 222 Communication Message Conversion and Production 3-4**
Production and evaluation of messages utilizing graphic arts processes. This includes phototype setting, camera work, stripping, plate making and offset press operations. **Prerequisite: IT 121 or permission of Instructor.**

INTERDISCIPLINARY

IT 202 Technical Drawing 3-4
This course will include lettering, dimensioning, orthographic projection, symbols, sectioning, isometric, and auxiliary views. Problem development and blueprint reading will be stressed.

IT 300 Production Planning and Control 3-3
Theory and practice in the essentials necessary for the operation of a manufacturing or service facility are the main thrust of this course. Layout of production, line operations, analysis of time requirements and related work resulting in an economical and efficient operation are included as part of the student lab experiences.

IT 340 Manufacturing Operations 3-3
Theory as well as practical work is emphasized in this course. Lab work includes the use of a variety of inspection and measuring tools pertinent to quality control in a manufacturing operation. Procedures used to determine product assurance, reliability and testing are studied.

***IT 402 Drawing Graphics 3-4**
A course designed to provide students with depth in drafting field and provide areas not normally covered in a Drafting Program. The student should have a good understanding of the drafting field prior to taking this course. The areas to be covered are (a) Boat Lofting (b) Topographic Drawing (c) Graphs and Charts. **Prerequisite: IT 202.**

***IT 404 Advanced Design 3-4**
Experimental design projects using the two and three dimensional approaches. The design of communications forms will make use of the five senses. **Prerequisites: IT 221, IT 222.**

IT 406 Problems of Mechanical Maintenance 3-4
A course designed to investigate problems encountered in the maintenance of mechanical equipment. Topics covered are lubrication, bearing installation, replacement of parts, safety, and color dynamics.

IT 407 Safety and First Aid 3-4
Introduction to the latest occupational safety and health standards and to provide opportunity for the student to perform practical inspections, complete reports, and recommended corrective measures to ensure safe and healthful conditions. Basic First Aid instruction is included.

***IT 408 Industrial Arts for Special Education 3-4**
Fundamentals of planning and constructing teaching aids and projects are stressed. Knowledge of tools, machines, and processes is covered.

***IT 409 Industrial Arts in the Elementary Classroom 3-4**
Students receive practical experience with elementary students at the McKay Campus Teacher Education Center organizing, integrating, and implementing industrial arts activities. Instruction related to tools, materials and processes applicable to elementary Industrial Arts activities is given.

IT 490 Directed Study 3
Students may enroll in a Directed Study experience for 1 s.h. or 2 s.h. (IT 491 or IT 492) with the approval of the professor and Department Chairman. If the study warrants 4 s.h., 5 s.h. or 6 s.h. (IT 494, IT 495, or IT 496), the Undergraduate Dean's approval must also be obtained.

ELECTIVES

Some of the electives are open to any student in the College as long as prerequisites are not required and there are openings in the class.

MATERIALS

IT 213 Plastics Technology **3-4**
An investigation of the rapidly expanding area of plastics, how they are produced, their merits and limitations. Tests are conducted to confirm reference data and to promote a better understanding of various plastics and products made from them. **Prerequisite: Some background in Chemistry essential.**

***IT 312 Wood Technology** **3-4**
A course in which students investigate defects which occur in wood and how these affect the grading of lumber. The process of drying lumber, and its effects on the material are stressed. The processing of various wood products is included.

IT 316 Heat Treatment of Metals **3-4**
This course covers the study of ferrous and nonferrous metals commonly subjected to heat treatment to modify their physical properties. Hardening, tempering, annealing, and surface treatments are studied.

***IT 330 Recycling of Materials** **3-4**
A study of the processes utilized in rendering waste products, used materials and scrap into re-usable materials. Industrial visits will be taken to observe different recycling processes. Tests to determine equality of recycled items, in comparison with original materials, are included.

***IT 331 Corrosion and Corrosion Prevention** **3-4**
A course designed to investigate one of man's most costly problems, its causes, and methods used to minimize the damage and expense due to corrosion.

IT 337 Product Analysis and Evaluation **3-4**
A course designed to test and evaluate the ability of a product to provide its intended service or function. Destructive and nondestructive tests are employed. **Prerequisite: IT 131.**

***IT 338 Physical Metallurgy** **3-4**
A study of metals, their properties and how they can be modified. Equilibrium and phase diagrams are introduced as needed. A variety of laboratory experiences are provided. **Prerequisite: Permission of Instructor.**

***IT 339 Metallography** **3-4**
Principles of metallography are studied and applied in the laboratory, including photomicrography. Structures, alloy compositions, and inclusions are investigated. **Prerequisite: Permission of Instructor.**

***IT 431 Composite Materials** **3-4**
An investigation of materials which contain two or more components, which combine to produce improved characteristics. Fiberglass-reinforced plastics, reinforced concrete, steel-belted tires and materials of similar nature are studied.

TRANSFORMATION

IT 317 Machine Processes **3-4**
The design and fabrication of metal products utilizing machine tools, metalworking processes and welding. **Prerequisites: IT 111, IT 212.**

***IT 318 Jig and Fixture Design and Construction** **3-4**
Instruction in the principles of jig and fixture design are covered. The students construct simple jigs and fixtures for various applications. **Prerequisites: IT 111, IT 212.**
(See IT 313, IT 314, IT 333, and IT 315 in the materials area for possible electives related to transformation.)

IT 319 Advanced Metal Fabrication Systems **3-4**
Specialized processes in the metal working industry will be studied. Laboratory experiences will include performing operations with tool cutter grinders, indexing heads, numerical control millers, turret lathes, and tracer lathes. **Prerequisites: IT 111, IT 212. Students who have taken IT 410 are not eligible.**

IT 410 Numerical Control **3-4**
Introduction and laboratory experiences are designed to provide students with the basic knowledge and techniques of programming and operations of the tape-controlled milling machine. **Prerequisite: IT 212.**

IT 411 Production Furniture Fabrication 3-4
Emphasis on the production of a piece of furniture employing the development and use of jigs, fixtures and other suitable mass production procedures. Appropriate methods of production management are employed. **Prerequisites: IT 111, IT 211.**

***IT 414 Wood Turning 3-4**
Instruction and laboratory experiences are designed to provide the student with basic knowledge and techniques of face plate and spindle turning. Advanced industrial methods are also studied. **Prerequisites: IT 111, IT 211.**

***IT 415 Patternmaking 3-4**
Experiences are provided in the principle practices of fabricating wood patterns and core boxes for the casting of tools and machines. **Prerequisites: IT 111, IT 211.**

IT 416 Welding and Casting 3-4
Instruction and laboratory experiences are designed to provide students with the basic knowledge and techniques of welding, cutting, and brazing using oxyactylene welding equipment. Instruction and laboratory experiences are designed to provide students with the basic knowledge and techniques of AC and DC welding and inert gas welding.

Students acquire basic knowledge and application of casting techniques used in the non-ferrous casting industry. Field trips to casting industries are included in the course. **Prerequisites: IT 111, IT 212.**

IT 418 Structures 3-4
A study of the construction industry with emphasis on residential construction methods, practices and procedures. A study of tools, equipment, and techniques used to construct a free standing structure as well as research in architectural problems related to residential construction. **Prerequisites: IT 111, IT 211, IT 212, IT 311.**

ENERGY

IT 244 Alternate Energy Sources 3-4
The study of solar and other forms of energy to supply household needs. Students build and test both commercial and laboratory-made devices. **Prerequisites: IT 241 or permission of Instructor.**

IT 341 Advanced Alternate Energy Sources 3-4
Course is limited to students who have demonstrated the ability and desire to continue the research and development of a solar energy system that showed promise in IT 244. **Prerequisites: IT 244 or permission of Instructor.**

***IT 342 Advanced Electrical Energy Systems 3-4**
This course emphasized the study of dynamos, their characteristics, applications, and control. Contemporary problems in electrical energy systems are covered. **Prerequisites: IT 205, IT 141.**

***IT 343 and IT 344 Advanced Energy Systems I and II 3-4**
The class designs, constructs, and tests a full-scale energy system of mutual interest to the class and the Instructor. **Prerequisites: IT 241.**
(See IT 336 in the materials area for possible elective related to energy.)

***IT 345 Internal-Combustion and Diesel Engines 3-4**
The students test, modify, and retest an engine. Diesel theory, injectors, and pumps are included. **Prerequisites: IT 241 or permission of Instructor.**

***IT 443 Flight 3-4**
The history and principles of subsonic and supersonic flight, rocket propulsion and jet engines. Includes construction of models for study of aeronautical phenomena.

COMMUNICATIONS

***IT 225 Calligraphy 3-4**
A brief historic introduction to the arts of the Merovingian and Carolingian Miniscules that preceded the modern hand lettering of today. The art of the broad nib pen and wide brush will be emphasized. Students develop a series of plaques, signs and charts.

***IT 226 AC Fundamentals and Applications 3-4**
Principles of AC electricity and electromagnetism and their applications in circuitry, motors, transformers and other devices. **Prerequisite: IT 205.**

***IT 227 Automatic Platen Press Operation 1-4**
Students set up and operate the Heidelberg automatic letterpress. Operations include scoring, die-cutting, perforation and advanced cold type imposition. **Prerequisite: IT 222.**

IT 228 Architectural Drawing 3-4
Students design a practical residential structure, conforming to standard practices and building codes. Technical skills are developed enabling students to communicate ideas. Topics include materials of construction, history and development of various styles, orientation of house on lot, loads, and design of structural members. Field trips and available films are used. **Prerequisite: IT 202.**

IT 320 Production Printing 3-4
Emphasis is on scheduling and production of contracted jobs. The course is designed to allow serious students to apply their previous instruction in a controlled, industrial type setting. Enrollment is limited to ten students. **Prerequisites: IT 326 and permission of Instructor.**

***IT 321 Process Color Separation 1-4**
Students experience the direct screening process obtaining four separation negatives with masks. The negatives are printed by means of a color key. **Prerequisite: IT 326.**

IT 322 Engineering Drawing 3-4
This course includes orthographic projection, intersections, developments, revolutions, axonometrics, assembly details, and pictorial drawings. **Prerequisite: IT 202.**

IT 323 Descriptive Geometry 3-4
Descriptive geometry is concerned with graphical representation and the solution of problems using spacial relationship of points, lines, and planes by means of projections. **Prerequisite: IT 202.**

***IT 324 Illustration 3-4**
All forms of illustration are studied; line, halftone, technical and non-technical color, pencil, ink, paint, and mechanical tints and tones. Techniques used are air brush, pressure sensitive lettering, and proportional enlargement and reduction.

***IT 325 Art of the Book 3-4**
A manuscript is developed in dummy form identifying type of paper, illustrations, letter form and page layout. Type is prepared and photographed. Printed pages are collated, hand sewn or end bound. The finished body is bound and finished.

IT 326 Offset Lithography 3-4
The students study the lithographic form of printing as it is used in modern industry. The majority of the course is spent in the darkroom and setting up and running offset presses. Concepts include line copy, halftone, special effects, diffusion transfer and density. Roles students will pursue are designer, photographer, flat-stripper, platemaker, press operator, and binder. **Prerequisite: IT 222.**

***IT 327 Electronic Equipment and Devices 3-4**
Study of a variety of electronic circuitry and equipment including power supplies, test equipment, metering, and sound measurement. **Prerequisite: permission of Instructor.**
(See IT 334 in the materials area as a possible elective related to communications.)

***IT 372 Solid-State Fundamentals 2-6**
Principles, operation and applications of diodes, transistors and other solid-state devices. (10 weeks) **Prerequisites: IT 205, IT 226.**

***IT 420 FM Reception 1-4**
Principles of FM reception and their application in FM circuitry. **Prerequisite: IT 429.**

***IT 421 Perspective Drawing 2-4**
Perspective drawing is a geometric method by which a "picture" can be projected on a picture plane. This form of drawing approaches the results of a photograph. One, two, and three point perspective are covered, with an introduction to shadows to add realism. Although rarely used by engineers, it is extensively employed by architects, artist-draftspersons, and illustrators. (10 weeks) **Prerequisite: IT 202.**

IT 424 Screen Printing 1-4
Students work with both hand-cut stencils and photo-direct emulsions. Emphasis is on multiple color registration and half-toning, using both hand and machine writing techniques. **Prerequisite: IT 222 or permission of instructor.**

***IT 425 Crayonstone Lithography 3-4**
Students grind and prepare their stones, develop and transfer their illustrations to the stones, draw and shade on the stones and print their illustrations.

***IT 426 Hand Book Binding 1-4**
The art of inlaid colored leathers, gold stamping, and decorating of quarter-half and full-bound volumes of books is developed. Students recover and case-bind volumes of their own choosing.

***IT 429 AM Reception 2-4**
Principles of AM reception and analysis of the superhet receiver (10 weeks). **Prerequisite: IT 205.**

IT 471 TV Reception 3-4
This course includes the principles of television reception as well as the analysis of television receivers and pulse type wave forms.

GENERAL EDUCATION ELECTIVES SEMESTER COURSES

***IT 203 Leatherwork 3-4**
Fundamentals of carving and decorating leather are covered including traditional carving, figure carving, and "nature" stamping. Items which can be made include key cases, coin cases, wallets, belts, and hand bags.

***IT 204 Copper Enameling 2-4**
Students experience techniques of firing enamels (including lamps and threads) on copper. Processes studied are sgraffito, trailing, and stenciling.

***IT 214 Ceramics 3-4**
Course includes throwing on the wheel and glazing techniques, with strong emphasis on different sculptural forms.

PROFESSIONAL (REQUIRED FOR ALL INDUSTRIAL ARTS MAJORS)

IT 480 Methods of Teaching Industrial Arts 3-3
A practicum involving short- and long-range methods for teaching Industrial Arts. Ancillary activities are included. (6 weeks)

IT 481 Evaluation & Lab Management 3-3
The teaching-learning process is diagrammed and each element is studied. (3 weeks).

IT 482 Curriculum Development in Industrial Arts 3-4
College students will observe and assist in Public School Industrial Arts classes. Based upon their classroom experience, the students will plan units of instruction. (6 weeks)

IT 483 Practicum in Industrial Arts 10-30
Experience in planning and implementing instructional strategies in a public-school setting. Requirements include self-evaluation.

IT 485 Pre-practicum and Seminar 3-3
Opportunity to formulate concepts of industrial arts education and develop a working knowledge of principles and practices of industrial arts administration. Pre-practicum experiences are also included.

***IT 486 Professional Study and/or Field Study 3-15**
Independent study in methods of teaching industrial arts and/or curriculum development. **Prerequisite: Approved contract detailing study and activities.**

INDUSTRIAL SCIENCE REQUIRED COURSES FOR FIELD OF ENGINEERING TECHNOLOGY

IT 151 Technical Analysis I 3-3
Development of computational skills used in solving problems involving polynomials, equations, trigonometry and vectors in the technical areas of mechanics, electronics, and fluid dynamics.

IT 251 Technical Analysis II 3-3
Continuation of IT 151 Technical Analysis I. Topics covered are logarithmic and exponential equations, complex numbers, statistical analysis, and an introduction to the derivative. Applications in the areas of experimental data reduction, vibration analysis, motion of a particle, and practical optimization problems are stressed. **Prerequisites: IT 151 or permission of Instructor.**

IT 252 Introduction to Experimentation 3-4
Emphasis is on the accumulation and evaluation of experimental data. Topics include literature surveys, project organization and management, types and uses of instrumentation, instrument accuracy, statistical analysis of data, design of experiments, and report-writing techniques. **Prerequisite: IT 251.**

IT 253 Circuit Theory 3-4
Principles of electric circuits and their applications to analysis and synthesis of linear circuits and characteristics of simple electric machines. **Prerequisites: IT 151; PH 270 may be taken concurrently.**

IT 254 Statics and Dynamics 3-3
Study of laws of static equilibrium of real bodies and fundamental principles of motion. Includes beam and structural analysis, friction, centroids, and Newtonian motion. **Prerequisite: IT 251.**

IT 351 Engineering Experimentation I 3-4
Activities required of technicians in industry are simulated. Students construct and assemble laboratory apparatus and perform tests on that apparatus. **Prerequisites: IT 251, IT 252, IT 253, PH 270.**

IT 352 Engineering Experimentation II 3-4
Continuation of IT 351, Engineering Experimentation I. **Prerequisite: IT 351.**

IT 353 Materials Technology 3-4
Topics include atomic bonding, atomic arrangements, structural imperfections, electronic structures and processes, phases and reaction rates and stability of materials in service environments. **Prerequisites: IT 251, PH 270, CH 100 taken concurrently or permission of the Instructor.**

TECHNICAL ELECTIVES

***IT 255 Laboratory Techniques 3-4**
Skill development in the use of tools and machines, glass-blowing, welding and brazing necessary for the construction of wood, metal, plastic and ceramic prototypes. **Prerequisite: IT 251.**

IT 256 Fluid Dynamics (Same as IT 243) 3-4
Flow phenomena of compressible and incompressible fluids are studied, including fluid statics and dynamics, boundary layers, conduit fluid flow, dynamic drag and lift. **Prerequisite: IT 251.**

IT 354 Strength of Materials 3-4
An introduction to the behavior of real materials under the influence of forces and couples. Axial, shear, torsional and flexural stresses and strains are determined.

IT 355 Digital Electronics and Microcomputers 3-4
An introduction to techniques of analyzing and synthesizing digital processors. Emphasis in design work is on IC technology.

IT 356 Electronics 3-4
Introduction to electronic circuits. Students learn to synthesize simple circuits and to utilize them as components of more complex systems. **Prerequisite: IT 253.**

IT 452 Research in Industrial Materials 3-4
The students are required to select a material and conduct an in-depth study. Class reports are required. Individual initiative and efficient use of time are stressed. **Prerequisite: permission of Instructor.**

***IT 453 Thermal Technology 3-4**
The laws of thermal energy and heat transfer are studied, including specific heats, thermal conductivities, gas and steam cycles, conduction, convection and radiation. **Prerequisite: IT 251.**

***IT 454 Control Theory 3-4**
Introduction to control theory utilizing examples of mechanical, fluidic, electronic and hybrid control systems. Emphasis is on design utilizing the project approach. **Prerequisites: IT 256, IT 356.**

***IT 455 Design of Machine Elements 3-3**
Introduction to design principles and failure modes for various mechanical components. Includes static and fluctuating loads for brittle and ductile materials, fatigue stress concentrations. **Prerequisites: IT 322, IT 354.**

***IT 456 Industrial Electronics** **3-4**
Study of applications of electronic principles in devices and equipment involving thermoelectronics, photoelectrics, electromagnetics, solid-state, welding and motor control, etc. **Prerequisite: permission of Instructor.**

IT 487 Directed Industrial Science Experience **12-18 or 15-24**
Students participate in an industrial experience with the approval of the Industrial Technology faculty.

MATHEMATICS

CHAIRMAN: Robert Clark
ASSOCIATE PROFESSOR: Gerald Higdon, Barry Light
ASSISTANT PROFESSORS: Robert Bentley, Robert Clark, Nicholas Copoulos, Lucy Dechéne, Ernest Fandreyer, Donald Freeburg, Frederick Harrop, David Thomas

The Bachelor of Science and a Bachelor of Arts in Mathematics must include MA 230, 240, 260, 330, 340, 350, and at least fifteen additional semester hours of advanced mathematics courses, at least nine of which must be at the 400 level. Graduate courses may be substituted for 400 level courses. The Bachelor of Arts degree requires foreign language proficiency at the second year level.

A Bachelor of Science in Education, Secondary in Mathematics must include MA 130, 230, 240, 260, 300, 325, 330, 340, 350, and at least six additional semester hours of advanced mathematics courses at the 300 or 400 level. Graduate courses may be substituted for 400 level courses. The major must also include ED 301, EN470, PY 110, 223, 275, MA 281, and MA 498.

A minor in mathematics contains 21 semester hours of which 12 semester hours are taken in Calculus I, II, and III and either Abstract or Linear Algebra. The additional three elective courses may be chosen from MA 150, Introduction to Mathematical Thought, or any mathematics course at the 300 or 400 level. At least one of the three electives must be at the 400 level.

MA 010 Basic Mathematics I
A review of basic arithmetic skills and an introduction to elementary algebra.

MA 020 Basic Mathematics II
A continuation of Basic Mathematics I. Elementary algebra through quadratic equations.

MA 100 Introduction to Mathematics **3-3**
An elementary course intended to acquaint the student with the nature of mathematical activity such as inductive and deductive reasoning, and problem solving.

MA 110 Introduction to Statistics **3-3**
Elementary concepts of probability and statistics with applications are studied to provide an awareness of the scope and uses of statistics in the world.

MA 115 Technical Mathematics **3-3**
A study of elementary topics used in solving technical and industrial problems. Intended for students in the Industrial Technology Department.

MA 120 Finite Mathematics **3-3**
A variety of discrete mathematical models are developed and applied to business and to the social and life sciences. Topics include matrices, linear programming, probability and game theory.

MA 130 Functions **3-3**
Intended as a preparation for the study of calculus. Topics include the real numbers, equations and inequalities, analytic geometry, and polynominal, trigonometric, exponential, and logarithmic functions.

MA 150 Introduction to Mathematical Thought **3-3**
Intended to introduce mathematics as the science of reasoning. Topics include elementary set theory, logic, techniques of proof, basic properties of the real number system, mathematical induction, and anxiomatic systems.

***Courses marked by an asterisk are not offered on a regular basis.**

MA 170 Applied Statistics I **3-3**
Methods of data collection, organization and interpretation, sampling, probability, estimation, and testing are applied to areas including biology, business, medicine, economics, and education.

MA 200 Informal Geometry **3-3**
In intuitive study of basic geometric objects and concepts. Topics studied vary but are chosen for their intuitive appeal as well as their geometric significance.

***MA 210 Analytic Geometry** **3-3**
A study of geometry of the plane and three dimensional space emphasizing the interaction of algebraic and geometric concepts.

MA 220 Calculus for Business **3-3**
A survey of those portions of one and several variable calculus most applicable to problems in business, the social sciences and biology. **Prerequisite: MA 120.**

MA 230 Calculus I **3-3**
The derivative of a function, methods of differentiation and applications.

MA 240 Calculus II **3-3**
The Riemann Integral, methods of integration, and applications.

MA 260 Linear Algebra
Topics include vector spaces, linear transformations and matrices with applications.

MA 270 Applied Statistics II **3-3**
A continuation of MA 170; topics include estimation and testing, simple linear regression, analysis of variance, nonparametric methods, time series analysis, and index numbers.

MA 281 Methods and Materials in Secondary Mathematics **3-3**
Curriculum and pedagogy of secondary school mathematics with a practicum of preprofessional experiences. Offered in fall semester only.

MA 283 Methods and Materials in Elementary Mathematics (Math Concepts) **3-3**
Topics from arithmetic, algebra, and geometry of modern elementary school mathematics programs with attention to the structural and discovery approach.

MA 300 Geometry I **3-3**
A formal study of basic concepts in geometry and the foundations of Euclidean geometry. This course is for mathematics majors and students with a mathematics specialization; all others need permission from the instructor.

MA 310 Discrete Algebraic Structures **3-3**
A study of discrete algebraic structures of interest in computer science. Topics include partial orders, Boolean Algebra, graph theory and finite state machines.

MA 320 History of Mathematics **3-3**
The development of mathematical ideas and methods from ancient to modern times and their relevance to other fields of knowledge.

MA 325 Probability and Statistics I **3-3**
A careful development of elementary probability theory with applications is followed by the study of discrete and continuous random variables including the binomial, poisson, and normal. **Prerequisite: MA 240.**

MA 330, 340 Calculus III and IV **3-3 Each Semester**
Sequences and series; vector-valued functions, partial differentiation, multiple integration and other topics.

MA 350 Abstract Algebra I **3-3**
A study of algebraic structures including groups, rings, and fields. **Prerequisite: MA 150 or consent of instructor.**

MA 360 Introduction to Mathematical Logic **3-3**
An elementary introduction to classical and symbolic logic, including standard sentential and first order predicate calculi.

***MA 400 Geometry II** **3-3**
Projective geometry and other topics.

***MA 405 Topology** **3-3**
Topics include point sets, metric spaces, topological spaces, connectedness and compactness.

MA 410 Ordinary Differential Equations 3-3
Linear first and second order differential equations, methods of solution and applications are studied. Series solutions and higher order linear equations are considered.

MA 415 Advanced Multivariate Calculus 3-3
The differential and integral calculus of vector-valued functions and functions of several variables.

MA 420 Real Variable Theory 3-3
A rigorous treatment of the foundations of differential and integral calculus with such topics as the real numbers, continuity, metric, and Euclidean spaces.

MA 425 Probability and Statistics II 3-3
Random variables and their probability distributions are used to study problems in estimation, hypothesis testing, regression and analysis of variance.

***MA 430-460 Topics in Mathematics 3-3**
Seminar. Topics from advance mathematics will be chosen from:

430 Abstract Algebra
432 Operations Research
434 Combinatorics
436 Complex Analysis
438 Differential Equations
440 Geometry
442 Logic
444 Number Theory
446 Numerical Analysis
448 Probability
450 Real Analysis
452 Set Theory
454 Statistics
456 Topology

Prerequisite: Permission of the instructor.

MA 490 Independent Study
Prerequisite: Permission of department.

MA 498 Student Teaching in Mathematics 6-6
Student Teaching Practiucm in Mathematics. Students are assigned to cooperating schools for a semester of student teaching.

MEDICAL TECHNOLOGY

COORDINATOR AND PROFESSOR:
Rose Marie Neunherz

The degree of Bachelor of Science in Medical Technology must include MT 100, 400, 420, 440, 460; BI 280, 410, 420, 440; CH 110, 120, 200, 210, 300; PH 110, 120; and two mathematics courses at or above the level of MA 12. To receive a Bachelor of Science degree, Medical Technology students must complete a practicum at an affiliated hospital. In order to be admitted to the Junior year in the Medical Technology program a student must have a minimum cumulative average of 3.0 in math, biology and chemistry courses. **The college cannot guarantee the placement of any candidate in an affiliated hospital.**

MT 100 Introduction to Medical Technology 1-2
An integrated lecture-laboratory course designed to acquaint the student with the role of the medical technologist in the clinical laboratory, the duties of technologists, employment opportunities and educational requirements for the profession. Laboratory work includes introduction to techniques in hematology, clinical chemistry, immunohematology and clinical microbiology. 2 hrs. lecture/lab per week plus additional hours for independent project. Offered Fall semester.

MT 400 Clinical Hematology 8-10
Comprehensive study of principles, procedures, special techniques and disease states in hematology. Laboratory experience includes theory and practice of blood cell enumeration and identification of normal and abnormal stained blood smears. Ca. 10 hrs. lecture/lab per week during each semester of hospital internship year. **Prerequisites: 90 college credits, including 21 cr. biology and 20 cr. chemistry.**

MT 420 Clinical Chemistry 8-10
Principles and techniques currently employed in clinical laboratories; preparation of solutions and care of equipment. Diagnostic tests are performed on all body fluids utilizing both manual and the latest instrumental techniques. Theory of the chemical manifestations of disease and the interpretation of data are stressed. Ca. 10 hrs. lecture/lab per week during each semester of hospital internship year. **Prerequisites: 90 college credits, including 21 cr. biology and 20 cr. chemistry.**

MT 440 Clinical Microbiology 8-10
A course designed to prepare the student for the isolation, identification and propagation of pathogenic organisms. Bacteria and their clinical significance to man are emphasized, but pathogenic fungi, protozoa and viruses are also considered. Ca. 10 hrs. lecture/lab per week during each semester of hospital internship year. **Prerequisites: 90 college credits, including 21 cr. biology and 20 cr. chemistry.**

MT 460 Immunohematology 8-10
Basic theory and laboratory techniques in blood banking and serology; common blood types, screening and preparation of donors, cross-matching, antigen-antibody reactions, and serological procedures: Ca. 10 hrs. lecture/lab per week during each semester of hospital internship year. **Prerequisites: 90 college credits, including 21 cr. biology and 20 cr. chemistry.**

MILITARY SCIENCE

PROFESSOR: LTC Roger F.X. Carney
ASSISTANT PROFESSORS: Maj Brian Sullivan, CPT Edward Buccellato, CPT Edward Harrington, CPT Francois R. Labrecque

Army Reserve Officer Training (ROTC) is offered by Fitchburg State College and is available to all male and female students. Physically qualified American citizens who complete the entire four-year program will be commissioned in the United States Army. Post graduate Army service will be satisfied by a brief three to six month period on active duty for training only followed by participation in an Army reserve component or three years active duty as a leader and manager. Delayed entry on active service for the purpose of graduate schooling is routinely granted.

Military Science is designed to complement other instruction offered by Fitchburg State. Emphasis throughout is on the development of individual leadership abilities and preparation of the student for future important leadership roles in the Army.

The Military Science Department offers several concurrent programs designed to complement the Fitchburg State Plan. There are four variations of ROTC available to the student who desires to participate:

1. The traditional 4-year program during which the student would take MS courses during the academic year and attend one advanced summer camp between the third and fourth years.
2. The 2-year program designed especially for transfer students from non-ROTC schools. In this case, qualified students attend a basic summer camp prior to their third year and then continue through their last two years as any other 4-year program student.
3. The third variation consists of a compressed program for students who feel they can complete their academic studies in three years. The recommended compression is to take both the first and second year military science subjects in one year but other arrangements can be made. The courses themselves are those of the 4-year program.
4. The last variation includes modular training in the military or personal skills which replaces part or all of the classroom academics offered in the first two years. This type of compression can be worked out both for first and second year students.

Enrollment in ROTC produces no military obligation for the first two years. Students entering the Advanced Course (usually at the start of the third year) may incur a three-year active-duty commitment as an officer in the U.S. Army, with the remaining 3 years in the inactive reserve, or a 6-year commitment in the Army National Guard or Army Active Reserve.

SIMULTANEOUS MEMBERSHIP PROGRAMS

SMP offers the student the opportunity to be a member of the Massachusetts National Guard and ROTC at the same time. Students will train as officers in their National Guard units during National Guard unit training. Students must be Massachusetts State residents to be qualified for SMP.

See the Financial Assistance section of the catalog for further information on the financial aspects of the Simultaneous Membership Program.

BASIC COURSE

The Basic Course includes the military science subjects taught during the first and second years. It introduces the student to the Army and the Army to the student. Since all effective leaders must understand the organization in which they will function, initial instruction is intended to create a working knowledge of the Army. Subsequent instruction deals with the study of a military management. Included is an in-depth analysis of the military aspects of American history.

ADVANCED COURSE

The Advanced Course includes those subjects taught during the third and fourth years. The objective is to develop leaders; to give the cadet experience in organizing, then managing a project; to enable the cadet to take charge of any project and bring it to a successful conclusion. This acquired ability is useful in every human endeavor; it is essential to the military leader. In conjunction with the theoretical approach to leadership studied in class, students are required to apply their knowledge during Leadership Laboratory. The Advanced Course is open to all students who have completed satisfactorily two years in the basic course or the equivalent. To be accepted, students must be selected by a board established by the head of the Department of Military Science.

A student enrolled in the Advanced Course receives an allowance of $100 a month tax free from the date of enrollment. During the Advanced Summer Camp, however, pay is computed on a fixed rate as established by the Department of the Army. To enroll in the Advanced Course students must execute a contract stating they will continue the course of instruction for two years and accept the commission of second lieutenant in the United States Army upon graduation.

LEADERSHIP LABORATORY

Leadership Laboratory, consisting of two training weekends at nearby Fort Devens, one in the Fall, and one in the Spring, is a mandatory program for successful completion of each ROTC year.

The purpose of Leadership Laboratory is to give each cadet the opportunity to apply practically the theory learned during formal class periods. The senior cadets conduct the laboratory period with under-classmen filling subordinate roles, their degree of responsibility dependent on how far they have advanced in ROTC.

The Military Science Department encourages its cadets to participate in athletics and to join other extra-curricular activities in order to practice leadership theories learned in Military Science. In the event of schedule conflicts, training periods selected from Intersession courses or active participation in one of the ROTC extracurricular activities may be substituted for the required weekend with prior ROTC advisor approval.

MS 110 National Security Problems Seminar 2-2

A study of the national security structure of the United States. Background study and discussion will also be conducted on threat perception and the nature of war. The social, economic and political implications of the defense establishment on the nation as a whole will be included.

MS 120 Introduction to the Army and Army ROTC 2-2

An introduction to Army ROTC and its methods; emphasis will be placed on ROTC as a commissioning program and its relationship with the United states Army. A complete discussion of the United States Army, its branches, and relationship to the overall United State military structure will be offered.

MS 130 Management of Small Unit Organizations 2-2

An introduction to the fundamentals of small unit leadership, management and operations. The role of the leader in a small unit is examined in order to demonstrate the principles of management. Theory X/Y-Maslow's Hierarchy of Needs and other important theories to be utilized.

MS 200 Land Navigation/Communications 2-2

Students learn the basic fundamentals necessary to navigate and communicate. In Land Navigation, students identify terrain features, find locations, determine directions and plan routes. Maps, protractors, compasses, terrain boards and audio-visual aids are utilized extensively. In the communications portion of the course, students

learn radio-telephone procedures, FM transmitter/receivers antennas and how to communicate. Principles and techniques derived from this course have application to many other studies, especially field work.

MS 202 Beginning Tactics 2-2
Principles of Leadership, organization and techniques of employment of small units in military operations are studied. Emphasis is placed on the managerial functions-planning, organizing, coordinating, directing and controlling-throughout the course. Students learn to solve problems working against time and stress. Maps, terrain boards and audio-visual aids are extensively utilized to bring realistic situations into focus. The various fundamentals of planning, decision making, risk taking and supervision can be transferred to many other fields of study.

MS 210 American Military History 2-2
An in-depth study of the American experience in war, and the evolution of the profession of arms in the American setting. Emphasis is placed on the influence of the European military heritage from earliest colonial times and its permutation in the post-revolutionary setting, imparting a truly unique American character to the military establishment. The U.S. military's philosophy of waging war, and how it views its relationship to the Federal Government and the American public are examined. The wars waged from the 18th century to the present, including their campaigns and captains, are surveyed and analyzed from a tactical and strategic standpoint. There is also an emphasis placed on the impact of the World Wars on American military thought and the stresses imposed on the military establishment as a result of the global U.S. geopolitical role in the Post World War II era.

MS 310 Advanced Theory of Unit Operations 2-2
A continuing study of effective leadership in tactical operations, culminating the lessons learned during previous courses; examination of the theory and dynamics of the military team and its effective employment as part of the combined arms concept.

MS 320 Effective Communication 2-2
An introduction to the military methods of instruction and basic teaching procedures. Effective speaking, listening, writing and military correspondence, and an emphasis on the interrelationship of staff and command assignments in the effective utilization of people and resources.

MS 410 Advanced Management Techniques 2-2
An in-depth study of the spychology of leadership based on an organizational model. Emphasis is placed on individual, group, transactional and organizational factor that both a leader and manager need to consider in order to be maximally effective. Concurrently through management simulation exercises, the student will be exposed to an practice the basic elements of problem analysis, decision making, planning, organizing, delegation, control and interpersonal skills. As a result of this laboratory experience, the student is provided with the essentials for forming a creative, personal management and leadership philosophy that is capable of early practical application in a real-world setting. All course materials will be provided. This course is primarily for upper classmen.

MS 420 International Politics/Military Law 2-2
The first two thirds of the course examines the international system, the use of force, arriving nations, contemporary world events and their effect on U.S. security. The impact of these issues on domestic politics and public opinion in relation to the military establishment is also examined. The final third of the course examines the role of the junior officer with regard to military law in the practical setting his/her initial assignment in an Army unit.

MUSIC

PROFESSORS: Richard Kent, Harry Semerjian
ASSISTANT PROFESSOR: Frank Patterson

MU 100 Art of Music I 3-3
Music as aesthetic experience. Representative styles and categories from the Middle Ages to the present. Students are required to attend professional concerts.

MU 200 Art of Music II 3-3
Music's reflection of the values and ideals of societies past and present. Interrelationships between the fine arts.

***MU 220 Basic Music Theory** 3-3
Rhythmic notation including meters and tempo. Melodic notation, including intervals, scales, and keys. Dynamics, an introduction to key relationship, transpositions, as well as other selected topics. **No prerequisites.**

MU 230 Music Through the Compositional Approach 3-3
Students will encounter music through a series of creative projects in varied musical forms. Students must have ready use of a tape recorder and their own tapes. **No prerequisites**

MU 310 Symphony 3-3
Structural and stylistic characteristics of the symphony from the 18th century to the present.

MU 320 Opera 3-3
Several works from the standard operatic repertoire. Some significant trends in modern opera.

***MU 330 Chamber Music** 3-3
Study of music for small ensemble.

***MU 340 Twentieth-Century Music** 3-3
The idioms and aesthetic notions of the present century, together with their relationship to the past.

MU 350 American Music 3-3
American music from colonial times, with some emphasis upon "popular" and "Art" music of the present century in the U.S.

***MU 360 Baroque and Classical Music** 3-3
Monteverdi to Beethoven. Opera, oratorio, passion, cantata, sonata forms, dance forms, shifting aesthetic views.

***MU 370 Romantic Music** 3-3
The 19th century as reflected in its music. Music drama, nationalism.

MU 400 Choral Arts 1-2
Singing choral music past and present, including dramatic music. No more than 6 semester hours applicable toward graduation. Available for audit. (See MU 410).

MU 410 Instrumental Arts 1-2
Small and large ensemble playing or representative works for instruments. No more than 6 semester hours of MU 410 or any combination of MU 410 and MU 400 applicable toward graduation. Available for audit.

MU 420 Class Piano 1-2
Practical keyboard usages in classroom work: accompaniment, simple transposition, harmonization of melodies at the keyboard.

MU 430 Class Voice 1-2
Principles of voice production. Breath control, phrasing, resonance, and diction are stressed.

MU 440 Song 3-3
Popular, folk, and art songs of many nations.

***MU 450 Harmony I** 3-3
Harmonizations of simple melodies. Principles of modulation and key relationships.

***MU 451 Harmony II** 3-3
Further work in modulation. Chromaticism. Late 19th and early 20th century developments. **Prerequisite: MU 450 or equivalent.**

***MU 470 Compositional Techniques** 3-3
Working with small musical forms. Traditional devices like sequence, ostinato, motivic development. Freer forms.

***MU 471 Musical Production** 3-3
Workshop approach to producing and rehearsing opera, operetta musical comedy.

MU 480 Music in Elementary Education 3-4
The objectives and techniques of teaching music in the first six grades.

MU 490 Independent Study in Music

***Courses marked by an asterisk are not offered on a regular basis.**

NURSING

CHAIRMAN: Barbara Madden
ASSOCIATE PROFESSORS: Lillian Bannon, Rita Driscoll, Phyllis Green, Barbara Madden, Elizabeth May, Katharine O'Connor, Margaret Taylor
ASSISTANT PROFESSORS: Virginia Doyle, Sheila Fredette, Sophia Harrell, Jane Minasian, Barbara May, Charlotte O'Connor, Carol Seaver, Eileen Sjoberg, Rowena Taylor, Dolores Torti
PART-TIME ASSISTANT PROFESSOR: Andrea Wallen
INSTRUCTORS: April Bergeron, Elizabeth Fisk, Catherine Humphreys, Mildred Marion, Joan Williamson
PART-TIME INSTRUCTORS: Sandra Austin, Genifer Anderson, Michelle Brady, Gail Consolati, Jean Kressy, Judith Mizhir, Barbara Powers, Helen Rogers, Patricia Schappert

Purpose

The purpose of the Fitchburg State Bachelor of Science Degree in Nursing is to prepare a practitioner of professional nursing who can assume responsibility for planning and providing health care to individuals, groups and communities in collaboration with other health professionals.

To accomplish this purpose the degree program requires a balance of general education and nursing studies. The following are the requirements of the degree, a nursing curriculum plan, and a program for registered nurses who desire a baccalaureate degree.

Bachelor of Science in Nursing
(123 semester hours—
63 semester hours in Nursing)

GENERAL EDUCATION (60 SH minimum)	
English Composition I & II	3/3
Speech	3
State & Federal Const. Prof.	
Math/Science	12-16
Anatomy & Physiology I & II	3/3
General Chemistry I & II	3/3
Survey of Micro-organisms	3
Social Sciences	15
General Psychology	3
Introduction to Sociology	3
Human Growth & Development	3
Humanities	15
Electives (from Gen. Ed. Area)	6
Applied Statistics	3
NURSING*	63 SH
The Nurse: Concept & Practice I & II	6/6
Scientific Foundations for Nursing Interventions	3
Nursing Intervention: Concept & Practice I & II	12/12
Nursing in Society: Concepts and Practice	10
Nursing: Selective Practicum	12
Professional Issues & Trends	2

***Students are responsible for providing their own transportation for clinical practice.**
NOTE: As of September, 1975 students will be required to have a quality point ratio in nursing courses at the end of each semester equal to the cumulative quality point ratio required for overall course work in order to progress to the next nursing course.

NURSING CURRICULUM PLAN

FRESHMAN YEAR

Anatomy & Physiology	3
Chemistry I	3
*General Psychology	3
English Composition	3
Elective	3
	15
Anatomy & Physiology	3
Chemistry II	3
*Intro. to Sociology	3
English Composition II	3
Elective	3
	15

SOPHOMORE YEAR

The Nurse: Concept & Practice I	6
*Human Growth & Development	3
*Applied Statistics	3
Elective	3
	15
The Nurse: Concept & Practice II	6
Scientific Foundations for Nursing Interventions	3
Microbiology	3
Electives	6
	18

JUNIOR YEAR

Nursing Intervention: Concept & Practice	12
Electives	3
	15
Nursing Intervention: Concept & Practice II	12
**Speech	3
Elective	3
	18

SENIOR YEAR

Nursing in Society: Concepts and Practice	10
Professional Issues & Trends	2
Elective	3
	15
Nursing: Selective Practicum	12
	12

***May be taken either semester.**
****May be taken any semester of any year.**

Bachelor of Science in Nursing for Registered Nurses

Applicants must meet the regular college requirements for admission which include the following: 1. Application filed by April 1; 2. Official transcripts from (a) High School (b) diploma or associate degree program and (c) colleges and universities attended.

In addition to the above requirements registered nurses must successfully complete the competency exams offered in place of the sophomore and junior basic nursing courses. These examinations are developed by the faculty in the Department of Nursing and administered by the CLEP Program Director once each month. All examinations should be completed by May 1 for admission the following fall. However, seniors in diploma or associate degree programs may arrange for a later testing date with the consent of the nursing coordinator. Further information including application for the examinations, course outlines and bibliographies may be obtained from the Nursing Department. It is also recommended that an interview be arranged with the coordinator of the registered nurse program.

Program Plan for Registered Nurses

Must meet the General Education Distribution Requirements as established for the basic nursing curriculum. Registered nurses may receive credit for General Education through the CLEP Program and teacher made examinations. At the present time, teacher made examinations are offered for Anatomy and Physiology, and Human Growth and Development. These exams are also offered through the office of the CLEP Program. The complete list of CLEP examinations through

which students may earn credit is also available from that office.

Nursing Distribution: Nursing Competency Examinations, 27 semester hours; Concepts of Nursing I, 6 semester hours; Concepts of Nursing II, 6 semester hours; Professional Issues and Trends, 2 semester hours; Nursing in Society: Concepts and Practices, 10 semester hours; and Nursing: Selective Practicum, 12 semester hours. Total required credits is 63.

NS 270 The Nurse: Concept and Practice I 6-8
Theoretical and methodological concepts provide the framework for assisting the student to develop as a person and a learner, and to prepare him/her to assume the role and responsibilities of professional nursing. Normal nutrition is part of the content. Laboratory experiences are provided for the acquisition of affective and psychomotor skills. **Prerequisites: BI 120, BI 130, CH 130, CH 140, PY 110, SO 110, EN 100, EN 120.**

NS 280 The Nurse: Concept and Practice II 6-8
The concepts learned in NS 27 are the frame of reference for the development of beginning skills in the assessment and care of chronically ill clients in an institutional setting, and assessment of women during pregnancy, and of the newborn child. Included is the introduction to pharmacology. **Prerequisite: NS 270.**

NS 285 Scientific Foundations for Nursing Interventions 3-3
This course is designed to assist the student to understand basic alterations in physiology and principles of pharmacology underlying nursing assessment, diagnosis and intervention. **Prerequisites: BI 120, BI 130, CH 130, CH 140**

NS 350 Concepts of Nursing I 6-9
Designed to provide the advanced placement student with a quality learning experience to broaden his/her perspective of professional nursing. Students choose clients from a variety of health care settings in order to apply their knowledge and skills in providing health care. (Offered first semester only.) **Prerequisites: Nursing competency examinations**

NS 360 Concepts of Nursing II 6-9
Through the process of critical thinking the concepts and theories of nursing and health are further developed and practiced with clients in settings chosen by the students. (Offered second semester only) **Prerequisite: NS 350**

NS 370 Nursing Intervention: Concept and Practice I 12-20
The totality of man as a bio-psycho-social being is emphasized. The frame of reference is man's internal environment. Concepts directed toward stabilizing this environment are discussed. Concepts and theories of nursing and health are discussed, broadened and increased in depth. Clinical experience in a variety of settings is an integral component of this course. **Prerequisites: NS 280, NS 285, PY 220, MA 170, BI 270.** (offered fall semester)

NS 380 Nursing Intervention: Concept and Practice II 12-20
The student continues to explore concepts of mean, health, nursing and the environment. Clinical experience in a variety of settings is an integral component of this course. (offered spring semester) **Prerequisite: NS 370**

NS 420 Professional Issues and Trends 2-2
This course provides an opportunity for senior nursing students to identify, explore, and discuss some of the critical issues and trends affecting nursing today; consider rights and responsibilities relative to professional organization and practice; and consider approaches to and opportunities for employment after graduation. This course is offered concurrently with NS 470.

NS 470 Nursing in Society: Concepts and Practice 10-16
considered are group, family and community. An holistic approach is used to assess the interdependence between the clients health and the environment. Nursing intervention is planned on the primary, secondary, and tertiary levels. **Prerequisites: NS 380 or NS 360 plus all previously noted prerequisites to NS 380.**

NS 480 Nursing: Selective Practicum 12-20 to 30
This course provides students with the opportunity to explore in depth particular areas of interest. The purpose of the experience is to encourage the synthesis of all previous learnings. The concepts of critical thinking, leadership skills, communication skills, and research underlie the course of study. The student is required to select a variety of guided clinical experiences during the semester. **Prerequisites: NS 420 and NS 470.**

PHILOSOPHY

PROFESSORS: Reginald O'Neill, Walter Jeffko
ASSOCIATE PROFESSORS: Richard DeCesare, Richard Glidewell

PL 100 Introduction to Philosophy 3-3
An introduction to the problems, methods, and goals of classical and contemporary Western Philosophy. Emphasis is placed upon how these differ from and relate to other fields of human knowledge.

PL 300 Philosophy of Education 3-3
This course seeks to trade the origin and development of major educational theories and their contemporary implications.

PL 310 Logic 3-3
An introduction to logical thinking from the perspective of both traditional and modern logic. The following topics are covered: difference between deduction and induction, language and definition, fallacies, categorical propositions, categorical syllogisms, deductive arguments in ordinary language, and selected topics in symbolic logic.

***PL 320 Theories of Knowledge 3-3**
The problems and methods of human knowledge. Theories presented in the light of idealism, realism, pragmatism, and existentialism. **Prerequisite: PL 100.**

***Courses marked by an asterisk are not offered on a regular basis.**

***PL 330 Metaphysics 3-3**
Introduction to the origin and development of metaphysical problems in Western Philosophy. **Prerequisite: PL 100.**

***PL 331 Ancient Philosophy 3-3**
A study of the beginnings of Western Philosophy, including the Pre-Socratics, Plato, Aristotle, and several other figures of the period. **Prerequisite: PL 100.**

***PL 332 Medieval Philosophy 3-3**
Includes St. Augustine, Boethius, Albertus Magnus, Avicenna, Averroes, Maimonides, and St. Thomas, and their influence upon subsequent philosophy. **Prerequisite: PL 100.**

PL 340 Philosophy of Man 3-3
An exploration of human nature or personhood from the triple perspectives of philosophy, religion, and behavioral science, focusing upon the following thinkers and movements: Plato, Christianity, early modern individualism, Marxism, Freud, existentialism, Frankl's logotherapy, Skinner, Fromm's humanism, and personalism.

PL 350 Contemporary Ethical Systems 3-3
Moral experience and reflective ethics; survey and critical evaluation of major ethical theories; ethics and science.

***PL 359 Modern Philosophy 3-3**
Trends of modern thought since the Renaissance, including Descartes, Locke, Spinoza, Leibniz, Hume, Kant, and Hegel. **Prerequisite: PL 100.**

PL 360 Contemporary Ethical Problems 3-3
Application of ethical thinking to some of today's major social and personal issues including crime and punishment, civil disobedience, prejudice and discrimination, sex, abortion, war, and suicide and death.

PL 361 Contemporary Philosophy 3-3
An examination of some current trends and issues in contemporary American, British, and European philosophy. **Prerequisite: PL 100.**

***PL 400 Existentialism 3-3**
Origin of contemporary existentialism; its leading ideas as seen in writings of such philosophers as Kierkegaard, Jaspers, Marcel, Sartre, and Camus. **Prerequisite: PL 100.**

PL 410 Philosophy of Art **3-3**
An examination of the interpretations of esthetic experience presented by such thinkers as Aristotle, Tolstoy, Shiller, Bergson, Spengler, and Dewey. **Prerequisite: PL 100.**

PL 420 Political and Social Philosophy **3-3**
The various political and social ideas beginning with Plato and continuing to Marx. **Prerequisite: PL 100.**

PL 430 Philosophy of Science **3-3**
An analysis of the methods and goals of the physical sciences, how they differ from the social sciences, and the philosophic problems encountered in scientific pursuits.

PL 440 Philosophy of Language **3-3**
The role played by language in human knowledge and the increased emphasis on the analysis of language in recent philosophy. **Prerequisite: PL 100.**

***PL 441 Plato** **3-3**
Plato's theory of idea, theory of knowledge, ethical and political views, doctrine of the fine arts. **Prerequisite: PL 100.**

***PL 442 Aristotle** **3-3**
A study of Aristotle's philosophy as seen in his Metaphysics, Politics, and Nicomachaen ethics. **Prerequisite: PL 100.**

***PL 443 Marxism** **3-3**
A study of Marx's thought, its origins, development, and contemporary applications. **Prerequisite: PL 100.**

***PL 444 Early American Philosophy** **3-3**
A study of American thought from the Colonial Period through 19th century.

***PL 445 Contemporary American Philosophy** **3-3**
An examination of the current trends and issues in American thought.

***PL 446 American Pragmatism** **3-3**
An analysis of the thought of Peirce, James, and Dewey. **Prerequisite: PL 100.**

PL 447 Seminar/Special Topics **3-3**

PL 450 Philosophy of Love **3-3**
An analysis of the concept "love" as employed in the social and moral philosophies of various classical and contemporary thinkers. **Prerequisite: PL 100.**

***PL 460 Philosophy of Religion** **3-3**
The God-problem and religious experiences as seen in the classical philosophers and in the philosophies of existentialism and pragmatism. **Prerequisite: PL 100.**

PL 466 Man & Nature
Man and Nature will be based, in part, on the *Ascent of Man* film series by Jacob Bronowski. It will cover a broad range of topics centering on those discoveries, ideas, and events which have been crucial to the development of modern civilization. Subjects as diverse as astronomy, romantic poetry, Einstein's Theory of Relativity, contemporary philosophy, and the human brain will be covered in such a way that the student is given a framework with which to understand and interrelate them. The Man & Nature course, a nine credit hour course combining science and humanities, fulfills three Math/Science and six Humanities credits for the General Education requirements, or the credits may be used as electives.

PL 468 Adventures in Ideas **6-6**
A study of the major ideas of Western man and their influence on our lives and our thoughts. Each semester several basic modes of thought are studied and the class explores how each idea manifests itself in literature, science, philosophy, etc. Classes are combinations of lecture and group discussion with considerable emphasis placed on individual student exploration of these major ideas.

PL 489 Comparative Religious Experiences **3-3**
This course studies the principal religions of mankind: Buddhism, Islamism, Judaism, and Christianity; their basis tenets and insights into spiritual values.

PHYSICAL EDUCATION

CHAIRMAN AND PROFESSOR: Thomas Battinelli
ASSOCIATE PROFESSOR: Lee N. Cunningham
ASSISTANT PROFESSORS: Joyce Downey, Barbara Nole, James Sheehan

Physical Education Specialization

The Fitchburg State College Physical Education Specialization is designed to provide students with an opportunity to pursue:

1. Study in an alternative field of interest.
2. Prerequisite study for further graduate work.

Professional Course Requirements (12)

Exercise and Sport Science (3)
Overview of Physical Education (3)
Behavioral Concepts of Sport (3)
Athletic Training and Conditioning (3)

Physical Activity Course Requirements (6)

Elementary	Secondary
Sports Concepts (1)	Team Sports (2)
Rhythmics (1)	Individual and Dual Activities (2)
Gymnastics (1)	Outdoor Sports Activities (2)
Outdoor Sports Activity (1)	
Individual and Dual Activities (2)	

Human Services majors may substitute Recreational Leadership and Camp Counseling as requirements.

Physical Education Courses

PE 100 Health and Fitness **3-3**
A basic survey of the effects of diet, exercise and selected environmental agents upon human, mental and physical health. Topics may include body build and body composition, fitness evaluation and programming, nutritional considerations, psychological correlates of health, chemical alternations, human sexuality, and personal and public health.

PE 200 Adaptations **3-3**
The human organism is examined in terms of its adaptation to acute and chronic stress. Physiological responses to such stressors as exercise, heat, and dark, altitude and nutrition are studied theoretically and in a laboratory setting.

PE 201 Psychology of Sport **2-1**
A basic overview of the psychological impacts of sport upon participants and spectators. The areas of winning and losing, competition behavior modification, women in sport, and the study and analyzation of emotional reaction profiles will be used in the observation of emotional behaviors.

PE 226 Officiating Basketball and Volleyball **3-3**
The philosophy and techniques of officiating basketball and volleyball for women. DGWS rules are used for both sports, and an opportunity is presented to take the written and practical national examination to obtain a rating in either or both sports.

PE 301 Introduction to Kinesiology **2-1**
An overview of the study of the mechanics of human motion will be presented. This course is designed to integrate Kinesiological principles to the teaching of selected motor activities.

PE 302 Consumer Health **2-1**
This course is designed to help the student evaluate health information critically, and select products and services wisely. The past, present, and future of quackery will be explored especially in the areas of food, cosmetics, and chronic disorders. Laws and protection agencies, governmental and private, will be surveyed.

PE 304 Diet, Exercise and Weight Control **2-1**
The course is designed for those interested in weight loss or weight maintenance through the medium of diet and exercise. After an initial assessment of body composition, endurance fitness and the establishment of dietary goals, each student will work toward the normalization of body weight through actual programs of exercise and diet.

PE 305 Figure Control Through Weight Training 2-1
The theory of weight training and diet in relation to figure control will be discussed. Each students will have physique, body composition, aerobic fitness and muscular strength evaluation before and after a weight training program.

PE 306 Weight Training for Athletes 2-1
Theory for the development of muscular strength for specific athletic activities. Anthropometric, body composition, and muscular strength evaluations will be undertaken prior to and following an individually developed weight training program.

PE 308 Behavioral Concepts of Sport and Fitness 3-3
This course is designed to aid the student in understanding the psychological and sociological behaviors common to the realms of sport and fitness. Concepts of competition, cooperation, motivation, social stratification and interaction will be examined. Also, a variety of observational techniques will be used in the analyzation of behavioral reactions.

PE 309 Physical Education for the Orthopedically Handicapped 1-2
The course will include an overview of congenital, postural, and degenerative orthopedic problems. It is designed to aid the student plan suitable corrective exercises and activity programs for people with these special needs.

PE 310 Techniques of Road Racing 2-1
The purpose of the course is to acquaint the student with various topics of running long distance road races. Topics include the physiology of running, training strategies, injury care and prevention, nutritional aspects and methods of assessing running ability. Each student will undertake a training program, serve on a committee to organize a road race and participate in three road races.

PE 311 Sports Concepts 2-1
Physical activity skills for team sports will be viewed from the physiological and values perspective. Students will practice physical activity and value techniques.

PE 380 Physical Education in the Elementary School 2-1
A theory and practice course designed to guide the classroom teacher in organizing a comprehensive program of physical education activities.

PE 400 Exercise and Sport Science 3-3
Basic exercise physiology is explored as it relates to the health professions. Theoretical topics include orientation to exercise, movement and energy production, neurological aspects of movement, and circulatory, respiratory, and hormonal factors in exercise. Practical topics include: cardiovascular stress testing, nutrition and weight control, physique and body composition, fitness programming, the female in sports, the influence of activity on growth, evaluation of muscular strength, respiratory responses to exercise, and environmental effects such as altitude and temperature.

PE 401 Athletic Training and Conditioning 3-3
A course designed to discuss the principles of injury prevention and care, the physiology of training and nutritional considerations as they apply to athletics.

PE 402 Jogging: Theory and Practice 3-3
The scientific basis for cardiovascular training programs using jogging as the mode of activity will be presented. Prepost cardiovascular and body composition evaluations and individualized jogging programs will be designed.

***PE 404 Fundamentals of Coaching 3-3**
An analysis of the principles and practices of coaching in various sports will be presented for the prospective teacher-coach.

PE 405 Recreational Leadership 3-3
The organization and administration of recreational activities will be presented in reference to the development of the principles and practices in both school and community programs. Leadership experience with school and community programs will also be offered.

***PE 406 Camp Counseling** **3-3**
Course content provides an opportunity to study some of the problems in the Field of Camping, to acquire skills essential in camp life and to develop leadership in individual and group work. Actual camping experience is gained by attendance at two weekend sessions of a local camp.

PE 407 Physical Education: An Overview **3-3**
Designed to provide the student with an overview of the philosophic history, administrative patterns, current curriculum approaches, teaching and learning concepts, and innovative trends in physical education.

Activity courses are taught on a half-semester basis. Each half semester carries 2 clock hours and ½ credit.

Basketball
Volleyball
Softball
Tennis
Advanced Tennis
Badminton
Karate
Judo
Gymnastics
Slimnastics
Rhythmics
Aerobics
Folk Dance
Canoeing
Tumbling
Introduction to Mountain Hiking
Backpacking
Downhill Skiing
Cross Country Skiing
Modern Jazz
Horseback Riding
Bicycle Touring

PE 408 Body Build and Physical Performance **3-3**
This course is designed for the study of body build in terms of size, shape, proportions and composition in relation to the physiological and/or psychological correlates of physical conditioning, motor ability, biomechanics, cardiovascular conditions and personality

PHYSICS

CHAIRMAN and PROFESSOR: Esmail Valanejad
ASSOCIATE PROFESSOR: Norman Fredette
ASSISTANT PROFESSOR: Karl Lindquist

PH 101, 102, 103 and 104 are for non science majors and are strongly recommended to students at large for satisfying their General Education requirements.

PH 110 and 120 are for biology, medical technology students.

PH 130, 140 are for computer science, chemistry, mathematics, industrial science majors.

PH 210, 220, 310, 320, 410, and 420 are all advanced courses that will be offered from time to time in the form of free electives to those students who have had PH 130 and 140 and have shown keen interest in Physics and Mathematics.

PH 103 Astronomy **3-4**
A study of planetary motion, the sun, stars, and galaxies. An observing program. A background of algebra is assumed.

PH 104 Environmental Physical Science **3-4**
The study of (1) the environment, (2) the effects of pollution on the environment, ecosystems, and natural balance and (3) relevent background material in physical science as needed. **Prerequisite: Physical Science I, Earth, Sea and Air, or equivalent.**

PH 110 Introductory Physics I **3-4**
An introduction to an analytical study of Newtonian mechanics and the properties of matter. A working knowledge of algebra is assumed. Elements of trigonometry are considered in the course.

PH 120 Introductory Physics II **3-4**
An introduction to an analytical study of wave motion, electricity and modern physics. A working knowledge of algebra and trigonometry is assumed.

PH 130 General Physics I **4-5**
Mechanics: Straight line motion; circular motion; Kepler's law of planetary motion; universal gravitation; work; energy; power; conservation of energy and momentum; simple harmonic motion. Hydrostatics and hydrodynamics: Archimedes' principle, Bernouli's equation, viscosity, Stokes law, Reynolds number. Heat and thermodynamics: heat and heat measurements; transfer of heat; thermal properties of matter; the laws of thermodynamics; kinetic theory of gases.

PH 140 General Physics II **4-5**
Electricity and Magnetism: Coulomb's law, electric field, electric potential, capacitance, electric circuits, magnetic field, magnetic forces on a current-carrying conductor, magnetic field of a current, induced e.m.f., magnetic properties of matter. Geometrical Optics: Laws of reflection and refraction; mirrors; lenses; optical instruments; eye and its optical defects and their correction; illumination and color. Physical Optics: interference and diffraction; polarization. **Prerequisite: PH 130**

PH 210 General Physics III **4-5**
Atomic and Nuclear Physics: Electronic configuration of the atoms; Bohr atom; atomic spectra; X-rays; radioactivity and radiation hazards. **Prerequisite: Ph 140.**

PH 220 Intermediate Mechanics **3-3**
Calculus and delta methods are used in an anlytical study of Newtonian mechanics with application to nonconservative forces, central forces, and rotational dynamics. Linear oscillator, free and forced oscillations, damping, vibrating string, traveling and standing waves. **Prerequisite: PH 130 or equivalent.**

PH 310 Quantum Mechanics **3-3**
Inadequacies of classical physics, uncertainty principle, Schrodinger equation, physical interpretation of wave function, energy levels, harmonic oscillator, hydrogen atom, perturbation theory. **Prerequisites: PH 210 and MA 240.**

PH 320 Electricity and Magnetism **3-3**
After a preliminary introduction to vector algebra, electrostatic as well as magnetostatic fields in vacuum and material media are discussed. Maxwell's equations and propagation of electromagnetic waves are considered.

PH 410 Statistical Mechanics and Thermodynamics **3-3**
Laws of thermodynamics, entropy, Carnot cycle, kinetic theory of gases, Bose and Fermi gases, low temperature physics. **Prerequisite: PH 310**

PH 420 Solid State Physics **3-4**
Short review of quantum mechanics, crystal structure, magnetism, semiconductor theory, specific heat of solids. **Prerequisite: CS 250**

POLITICAL SCIENCE

ASSISTANT PROFESSOR: Shirley Haslip

Courses in political science are intended for any student with a general interest in politics and government. They are also designed to provide a proper background for students interested in pursuing graduate study or a career in law, public administration, or government and political science. It is recommended that these students take six hours of Modern American Government and six hours of electives.

Modern American Government, PS 100 and PS 200 or the consent of the Instructor are required for all other courses in Political Science.

PS 100 Modern American Government: State and Urban Government **3-3**
Focus upon current issues in urban and state government and politics and attempts to evaluate proposed solutions.

PS 200 Modern American Government: The Federal Government **3-3**
Growth and complexity of the functions performed by the branches of the national government: Congress; President; and Supreme Court. Examination of the crucial role of the President today in national and world affairs. Attention given to current political campaigns. N.B. PS 100 and 200 or the consent of the Instructor are required for all other courses in Political Science.

PS 210 Public Policy Analysis: Case Studies in American Politics 3-3
Covers four major divisions of public policy: health, education, labor, and welfare. The aim is to attain an understanding of how the American political system works through a study of the policy that has come out of that system.

PS 220 Constitutional Law and the Supreme Court 3-3
Treats the Constitution as a living document, tracing its development through historic Supreme Court decisions.

PS 250 Legal Internship 6-12
Internships are available in several regional law offices for those persons interested in para-legal work. These internships prepare students for positions in law offices, public administration, and other human service work. Credit is either 6 or 12 semester hours depending upon arrangements with the Social Sciences Department.

PS 300 International Law and Organization 3-3
A study of the pioneering political institutions which have been fashioned to cope with the issues of world interdependence.

PS 320 Contemporary International Relations 3-3
A study of critical problems confronting the present international system. The "Cold War," armed conflict, internal violence, as well as prospects for the resolution of conflict are explored. Simulational gaming exercises and class discussions supplement readings.

PS 330 Foreign Intelligence and National Security Affairs 3-3
The defense and foreign affairs of the U.S. and U.S.S.R. Nuclear weapons, arms control, civil-military relations, terrorism, policy, and decision making are studied. Special attention is given to foreign intelligence and espionage. Current problems in international and national security affairs are discussed.

PS 350 Political Systems of the Modern World 3-3
A comparative analysis of modern national governments such as the Soviet Union, France, Germany, and Great Britain. Importance of the world's political heritage and the implications for the emerging nations of liberal democracy, communism, and dictatorship.

PS 360 Civil Rights and Civil Liberties in the United States 3-3
Conceptual perspectives of civil rights and civil liberties, freedom of expression and the problem of loyalty and security, equality, the civil rights movement, criminal justice procedures, and the politics of civil rights and liberties.

PS 400 Principles of Administration 3-3
An introduction to administration is presented. Leadership, authority, change, and communications are among the topics discussed. The course includes case studies and problem-solving from such fields as allied health, business, law-enforcement, and government service.

PS 489 Internships in Political Science
Off-campus opportunities, carrying appropriate academic credit, are available in local, state, and federal government offices and with political campaigns. Open to students who have the permission of the department. Credit and hours by special arrangement.

PS 490 Independent Study in Political Science
Open to students who have the permission of the supervising instructor and the department. Course of study, meetings, and credit by arrangement.

PSYCHOLOGY

COORDINATOR: Charles Streff
PROFESSORS: Harry Crowley, John Dufault, E. Arthur Garvin, Paul Girling, Donald Isaac
ASSOCIATE PROFESSORS: Alan Bernstein, G. Jefferson Breen, Mary Ann Hanley, Mabel Sgan, Richard Spencer, Charles Streff
ASSISTANT PROFESSORS: David Bakken, Anita Hotchkiss, Carol Gay, Richard Kruse, Donna-Lee McCabe

The degrees of Bachelor of Arts and Bachelor of Science in Psychology require thirty-seven semester hours of course work in Psychology

***Courses marked by an asterisk are not offered on a regular basis.**

(NOTE: The Bachelor of Arts degree requires foreign language proficiency at the second year college level). The program is divided into two groups of courses with special requirements, integrative or pre-professional courses, and related electives.

GROUP I: All courses required

PY 110 General Psychology
PY 210 Psychological Statistics
PY 214 Intro. to Research Methods
PY 441 Experimental Psychology
PY 448 History & Systems in Psychology

GROUP II: At least one course required from each area.

Area 1: Developmental

PY 220 Human Growth & Development
PY 221 Child Psychology
PY 223 Adolescent Psychology
PY 224 Adult Psychology
PY 225 Psychology of Women
PY 226 Gerontology
PY 232 Death and Dying

Area 2: Adaptive

PY 216 The Psychology of Speech & Communication
PY 335 Abnormal Psychology
PY 336 Mental Health: A Social-Psychological Perspective
PY 355 Group Dynamics
PY 265 Social Psychology
PY 373 Psycho-Social Problems of Urban Children

Area 3: Basic Processes

PY 342 Physiological Psychology
PY 343 Perception
PY 350 Psychology of Learning

Area 4: Applied Studies

PY 215 Introduction to Speech Pathology
PY 345 Psychological Testing
PY 360 Industrial and Organizational Psychology
PY 371 Learning Theory and Its Application
PY 377 Principles of Guidance

The remainder of the thirty-seven credits should be taken among the above areas or from the following integrative or pre-professional courses and from the related electives. An integrative or pre-professional course is recommended.

Integrative or Pre-Professional Courses

PY 422 Advanced Child Psychology
PY 480 General Psych. Teaching Practicum I
PY 481 Seminar in Developmental Psychology
PY 482 Practicum in Developmental Psychology
PY 483 Practicum in Experimental Psychology
PY 487 Internship in Psychology
PY 489 Internship in Psychology
PY 400 Topics in Psychology

Related Electives

ED 211 Behavioral Science in Early Childhood I
ED 311 Behavioral Science in Early Childhood II
PY 275 Tests and Measurements

The Related Electives area would also include seminars, independent study, and other courses approved by the Psychology Curriculum Committee.

A Minor in Psychology

The minor in Psychology requires a minimum of 18 semester hours of course work in the area, beyond the course General Psychology. The student who minors in Psychology should have: a) sufficient familiarity with the field to read relevant research and writing; b) an association with the major areas of the field; and c) an opportunity to explore a particular interest in the field in some depth. Accordingly, the 18 semester hours shall consist of Introduction to Research Methods, Psychological Statistics, and one course EACH from any THREE of the four areas delineated above. There is required one additional Psychology course from any of the areas or integrative courses.

Course Descriptions

PY 110 General Psychology **3-3**
The science of human behavior. Scientific method, maturation, motivation, emotions, sensation, learning, personality, and adjustment. This course is a prerequisite for all other courses in psychology.

PY 210 Psychological Statistics 3-3
Introduction to applied statistics; statistical treatment of data; descriptive statistics; basic inferential statistics up to and including analysis of variance. **Prerequisite: PY 110.**

PY 214 Introduction to Research Methods 3-3
Research design, including consideration of sampling procedures, questionnaire design, methods of observation and reporting. **Prerequisite: PY 110.** It is strongly recommended that a student will have completed PY 210.

PY 215 Introduction to Speech Pathology 3-3
An orientation to speech pathology by identification and referral procedures for primary speech problems, examination and observation of speech therapy procedures. Clinical point of view is stressed. **Prerequisite: PY 110.**

PY 216 The Psychology of Speech and Communication 3-3
This course provides information for judging speech behaviors of self and others. Concepts of speech, language and communication, healthy speaking and listening behaviors, non-verbal communication, animal communication, linguistic and psycholinguistic theory. **Prerequisite: PY 110.**

PY 220 Human Growth and Development 3-3
A study of the physical, physiological, social, and psychological development of the individual from conception to old age. **Prerequisite: PY 110.** (cannot be used as credit toward the major.)

PY 221 Child Psychology 3-3
Emphasis on theories and research in child development, and their application to the understanding and guidance of development in normal children. **Prerequisite: PY 110.**

PY 223 Adolescent Psychology 3-3
Adolescence as a cultural phenomenon and as a stage of development is investigated, with the aim of understanding the impact of current theoretical emphasis and trends, physical and sexual development of emerging youth in their search for identity. **Prerequisite: PY 110.**

PY 224 Adult Psychology 3-3
A study of the major theories of adult development, with emphasis on problems and pressures of middle years. **Prerequisite: PY 220 or PY 221 or PY 223.**

PY 225 Psychology of Women 3-3
Objectives involve an increased awareness of the psychological development of women and of the dimensions of self and personhood in relation to society; the examination and analysis of issues relative to current debate concerning the status of women. **Prerequisite: PY 110.**

PY 226 Gerontology: the Psychology of Growing Old 3-3
This course introduces the student to psychological aspects of growing old in our society. Topics for investigation include intelligence and memory, personality differences, altered life styles, disengagement theory, reactions to stress and loss through death. Emphasis is on the normal aging process rather than the pathological. **Prerequisite: PY 110.**

PY 230 Psychology of Personality 3-3
Dynamic factors in personality formation are studied through some of the leading theoretical positions on personality development. **Prerequisite: PY 110.**

PY 232 Psychology of Death and Dying 3-3
Through lectures, readings, discussions, and media, students explore psychological theory, research, and personal feelings concerning the dying process, suicide, grief, sudden death, and dying as it influences persons at different developmental stages. **Prerequisite: PY 110.**

PY 265 Social Psychology 3-3
Psychological constructs and concepts applied to the interaction between human beings. **Prerequisite: PY 110.**

PY 275 Tests and Measurements 3-3
A study of the basic statistical concepts and techniques of measurement, with application to teacher-made tests and standardized tests used in education and psychology. **Prerequisite: PY 110.**

PY 335 Abnormal Psychology 3-3
Normal, neurotic, and psychotic behavior and methods of psychotherapy are reviewed. Techniques for maintaining optimal psychological health. **Prerequisite: PY 110.**

PY 336 Mental Health: A Social-Psychological Perspective 3-3
Theoretical concepts and research in current social psychology are applied to a consideration of definitions and diagnosis, causes and treatment of mental illness, and to a consideration of the determinants of problematic behavior. Labelling theory is also considered, as applied to mentally ill persons. **Prerequisite: PY 110, PY 335 or PY 265, and permission of Instructor.**

PY 342 Physiological Psychology 3-3
Relationship between behavior and the structure and function of the organism's nervous system; emphasis on the physiological basis of learning, motivation, emotion, motor activity, and perception. **Prerequisite: PY 110.**

PY 343 Perception 3-3
Principles related to man's awareness of his world. Topics to be considered are psychophysics, the relationship between motivation and perception, the sensory bases of perception and localization in space.

PY 345 Psychological Testing 3-3
Laboratory course in the theory, administration, and interpretation of group and individual tests used in studying certain behavior characteristics. **Prerequisite: PY 210 or equivalent.**

PY 350 Psychology of Learning 3-3
Principles and theories of learning, classical conditioning, operant conditioning, verbal learning, acquisition of motor skills. **Prerequisite: PY 110.**

PY 355 Group Dynamics 3-3
The nature and dynamics of interpersonal relationships are revealed in typical group settings such as classrooms, workshop seminars, and other discussion-oriented groups. Emphasis is on both content and process as demonstrated in a laboratory learning environment. **Prerequisite: PY 110.**

PY 357 Small Group Leadership 3-3
This course is designed to equip students to plan and conduct meetings requiring the coordination of effort of small groups of people. Participants will study and practice basic leadership skills applicable to a variety of small group settings. They will develop and demonstrate these skills in the context of small group participation in class and as readers of extra-class groups.

PY 360 Industrial and Organizational Psychology 3-3
Psychological principles and techniques used in selection and placement of employees: psychological tests; worker motivation and adjustment; training; morale; accident prevention; job efficiency. **Prerequisite: PY 110.**

PY 371 Learning Theory and Its Applications 3-3
The principles and theories of learning, as derived by both the laboratory psychologist and the educational researcher, as applied to various social settings: the classroom, the family, etc. **Prerequisite: PY 110.**

***PY 373 Psycho-Social Problems of Urban Children 3-3**
The experience of the inner-city child is studied in relation to housing, schools, and teachers; emergence of the "alternative school" and other attempts to help children. Students participate in a two-hour weekly seminar and work for at least five hours in the community. **Prerequisite: PY 110.**

PY 377 Principles of Guidance 3-3
Introductory course for students interested in developing their skills in helping relationships in a one-to-one relationship and or in a group setting. **Prerequisite: PY 110.**

PY 400 Topics in Psychology 3-3
Seminar dealing with contemporary issues in psychology. Specific topics will vary from semester to semester, depending on the instructor. **Prerequisite: Variable-permission of Instructor.**

PY 422 Advanced Child Psychology 3-3
An expansion and continuation of the major topics in child psychology. Opportunities for individual projects and experiences with children will be provided. **Prerequisite: PY 221.**

PY 441 Experimental Psychology 4-4
The scientific method, experimental designs, and laboratory methods in behavioral science, emphasizing laboratory experiments and scientific communication of results. **Prerequisite: PY 210 or permission of Instructor.**

PY 448 History and Systems of Psychology 3-3
A consideration of contemporary psychology as seen in its historical perspective. The development of psychological concepts and theories is traced from their antecedents in philosophy, theology, and the physical sciences. **Prerequisite: Junior or Senior standing, 15 credits in psychology.** Taught fall semesters only.

PY 480 General Psychology Teaching Practicum 6-15
Assistantship in the teaching of General Psychology. **By appointment by staff only.**

***PY 481 Seminar in Developmental Psychology 3-3**
Seminar dealing with contemporary problems in developmental psychology. Specific topics vary from semester to semester. **Prerequisite: Permission of Instructor.**

PY 482 Practicum in Developmental Psychology 6-15
Experience in practical application of basic principles of human development. Students work with staff in areas of mutual interest. Preference given to students having taken PY 481. **Prerequisite: Permission of Instructor.**

PY 483 Practicum in Experimental Psychology 6-15
Advanced and applied work in experimental psychology. Students work with staff in areas of mutual interest. **Prerequisite: Permission of Instructor.**

PY 487 or 488 Internship in Psychology 6-15
Extensive work in a field or service agency under the supervision of both departmental and agency personnel. Credit will be granted only for work in departmentally-approved settings which provide departmentally-approved experiences. **Prerequisite: Departmental Approval.**

PY 489 Internship in Psychology 12-30
Same description and prerequisites as for PY 487.

PY 493 Independent Study 3-3
Offered primarily to outstanding students of Junior or Senior standing, and requires approval of the professor and of the Chairman of the Behavioral Sciences Department. Independent study may take the form of: special advanced reading programs; problem identification and research; assistantships; acquisition of professional skills. Under no circumstances will independent study be substituted for regularly scheduled courses. Independent study may be taken for from 1 to 6 semester hours.

RUSSIAN

PROFESSOR: John Burke

RU 100 Russian for Beginners I 3-4
Correct pronunciation, reading ability, and fundamentals of grammar and syntax. Russian gradually becomes the working classroom and laboratory language.

RU 110 Russian for Beginners II 3-4

RU 200 Intermediate Russian I 3-4
Remedial pronunciation, grammar variety, conversation, and laboratory practice. Readings stress U.S.S.R. life, customs, and culture. Russian is the working language. **Prerequisite: Two years of high school Russian or RU 110 and/or Instructor's permission.**

RU 210 Intermediate Russian II 3-4
Continuation of RU 200.

RU 360 Russian Literature in English Translation 3-3
A seminar on a specific topic from Russian literature (e.g. Dostoevski & Tolstoy; Soviet Literature etc.) Lectures and readings in English. Emphasis on significant works of Russian and Soviet literature. May be repeated for credit.

RU 370 Russian Culture and Soviet Life (in English) 3-3
An introduction to Russian life and culture as manifested in Russian geography, art, music, film and literature. National characteristics of the Russian people and their influence on Soviet institutions. Everyday life in the Soviet Union. Includes a significant audio-visual component.

RU 490 Independent Study in Russian
Open to students in the language with the permission of the supervising instructor and the Department Chairman. Meeting times and credit by arrangement.

SOCIAL SCIENCE

CHAIRMAN: Norman Carson
PROFESSORS: James Barbato, Muriel McAvoy, George Merriam, Donald Norton, Edmund Thomas
ASSOCIATE PROFESSORS: Lawrence Arnold, Robert Champlin, Robert Gardula, Pasquale Micciche, Caroline Murphy
ASSISTANT PROFESSORS: John Clark, Douglas Hebb, Nancy Wiegersma
INSTRUCTOR: Shirley Haslip

The Social Science Department includes the faculties of economics, geography, history, and political science. Major degree programs are offered in history and geography.

History
The Social Science Department offers a number of alternatives for history majors. Various program arrangements can be structured to student needs. The major includes core requirements with concentrations in Local and Applied History, Russian Studies, Latin American Studies, Western European Studies, American Studies, and Introduction to Museum and Archival work. Students may also become involved in the Legal Internship Program. Concentrations and special programs are arranged through individual advising with faculty. Interested students should contact the Department Chairman. A complete description of this major program and listing of history courses may be found in the section entitled History.

Geography
The degree of Bachelor of Science and Bachelor of Arts in Geography must include the Introduction to Geography and 36 semester hours in one of the following areas: Earth and/or Environmental Science, Urban-Community Development and/or Public Service or Area Development. Courses are structured to prepare students for employment or graduate school. The Bachelor of Science degree contains a core of education courses and 27 semester hours in geography electives. A complete description of the major program and a listing of geography courses may be found in the section entitled Geography.

Economics and political science courses are listed under Economics and Political Sciences.

SOCIOLOGY

COORDINATOR: Harold Melvin
PROFESSORS: Grainger Browning, Harold Melvin
ASSOCIATE PROFESSOR: A. Orin Leonard
ASSISTANT PROFESSOR: Patricia Macrides

Sociology is one of the disciplines which make up the Behavioral Sciences Department. A major field in itself leading to the B.A. or B.S. degree, Sociology courses are also a component of other majors in the Behavioral Sciences.

The major requires 36 semester hours of undergraduate course work approved by the Faculty. Programs are designed for students who are interested in employment immediately on graduation and also for the student who plans to continue on to graduate school. It is a desirable major for pre-law, public administration, public relations, social welfare and related graduate programs. SO 110, Introductory Sociology, is a prerequisite for all other courses in this area.

Each of the regular faculty members serves as advisor to students majoring in Sociology and in conference with the advisee will design a program suited to the student's goals. Strongly recommended for all majors are SO 213 and SO 214, Social Research Methods and Analysis, and SO 216, Social Theory. HS 350, Introduction to Social Work, and HS 374, Probation, are acceptable for the 36 semester hour requirement for a Sociology major.

SO 110 Introduction to Sociology 3-3
Structure and process in human group behavior, with consideration of development, maintenance, and change variables. **Prerequisite for all other Sociology courses.**

SO 213 Basic Skills of Social Research 3-3
The purpose of this course is to develop skills in research concepts and techniques (e.g., interviewing, participant observation, questionnaire construction, etc.) related to sociological study and practice.

SO 214 Applications of Social Research in the Work Setting 3-3
This course proposes to provide a deeper understanding of the basic techniques of social research. The application of these techniques to consumer behavior, clients, organizations, social agencies, and case studies is examined. Students are also exposed to the computer and its relevance to problem-solving situations in such fields as law, business, medicine, and government service.

SO 216 Social Theory 3-3
Social philosophy precursors, sociological scientific theorists from Comte to Parsons, contemporary schools of thought in Sociology.

SO 225 Introduction to Cultural Anthropology 3-3
The study of cultures: technology, economics, kinship, political structures, language, religion, culture and personality, art, and applied anthropology.

SO 235 Sociology of Language 3-3
Includes elements of phonology, dialectology, linguistics, semantics, lexicology, and etymology in relation to age, sex, class and peer group variables.

SO 244 Urban Sociology I: Community Development 3-3
The structure and function of cities in history and modern life.

SO 245 Urban Sociology II: Community Analysis 3-3
The community as a social system. The course includes field study involving observation and analysis of local communities.

SO 250 Race and Ethnic Relations 3-3
Concepts and research relating to understanding and evaluation of relations among ethnic and racial groups with particular emphasis on current black/white relations in America.

SO 251 Future Studies: Sociological Perspective 3-3
Examines various techniques for projecting the future and develops an awareness of alternatives for the future and significant variables.

SO 362 Sociology of Religion 3-3
Structure and function of religious organization, beliefs, and practices. Current issues in American religion.

SO 363 Sociology of The Family 3-3
Structure and function of the family: trends and practical solutions to problems in family living.

SO 365 Sociology of Organizations and Bureaucracy 3-3
Study of industrial organizations and the process of industrialization. The impact of technology and related factors on work organizations will be analyzed.

SO 370 Social Problems 3-3
Consideration of major social problem areas such as: energy, family, government, poverty, health, crime, etc. Etiology, analysis, and prognosis are studied.

SO 375 Criminology 3-3
A survey of the field of criminology including such topics as: criminal statistics, rape, homicide, assassination, property crimes, capital punishment, police, courts, and corrections.

SO 376 Juvenile Delinquency 3-3
A critical examination of major sociological theories of delinquency including an analysis of empirical studies. Attention will also be given to the juvenile judicial system and proposed treatment programs.

SO 400 Topics in Sociology 3-3
Offered for supplementation and enrichment of offerings in the major. With permission this course may be taken more than once. Topics which have been offered include: Social Stratification, Social Inequality, Social Gerontology and sex/gender roles in society.

***Courses marked by an asterisk are not offered on a regular basis.**

***SO 483 Practicum in Teaching Sociology 6-15**
Provides a variety of work experience under professional supervision. For sociology majors only.

SO 487, 488 Internship in Sociology 6-15
Arranged for in consultation with Faculty and carried out under auspices of an approved agency or program in the community, or a state or federal agency or office. This experience should be of such a nature as to develop skills in sociological practice, principles, and/or research.

SO 489 Internship in Sociology 12-30
See SO 487 for description and prerequisites.

SO 490 Independent Study 3-3
A program of study designed with the student to make possible in-depth learning in a specific topic for which no regular course is available. For Sociology majors only. May be taken no more than two times with permission of Faculty. An Independent Study may be taken for 1 to 6 s.h.

SPANISH

ASSISTANT PROFESSORS: Anthony Feroci, Jeannette Scharf

The Minor in Spanish

The minor in Spanish will require a minimum of 15 semester hours. Students must take Intermediate German I and II or be able to demonstrate proficiency at that level. Elementary German will not count toward the minor. After demonstrating intermediate level competency, the student may take a combination of courses in Spanish literature, composition or culture which will yield the requisite 15 hours of credit. For those students starting Spanish above the intermediate level, SP 490 Independent Study in Spanish, may be repeated for credit.

SP 100 Spanish for Beginners I 3-4
Correct pronunciation, reading ability and fundamentals of grammar and syntax. The premise is to teach the student the four language skills of listening, speaking, reading and writing. Cultural topics are integrated with these skills. Spanish gradually becomes the working classroom language. Students with a year or more of high school Spanish should register for Spanish 200.

SP 110 Spanish for Beginners II 3-4
Continuation of SP 100 or permission of the instructor.

SP 200 Intermediate Spanish I 3-4
A discussion of advanced grammar points and readings dealing with Spanish life. Emphasis will be on developing conversational fluency. **Prerequisite: SP 100 or permission of instructor.**

SP 210 Intermediate Spanish II 3-4
Continuation of SP 200 or permission of the instructor.

SP 300 Hispanic Culture 3-3
This course is designed to provide students with a knowledge and understanding of the Hispanic world through a study of the historical and cultural development of different countries with emphasis on contemporary problems and social customs of the Hispanic in the USA. **Prerequisite: SP 210 or permission of the instructor.**

SP 330 Hispanic Literature 3-3
Selected works reflecting the Hispanic heritage in contemporary Spanish and Latin American literature. **Prerequisite: SP 210 or permission of the instructor.**

SP 350 Spanish Conversation and Composition 3-3
This course is designed to teach the student to write and speak Spanish. Students will be expected to write and speak Spanish. Students will be expected to write compositions on topics developed orally in class. **Prerequisite: SP 210 or permission of the instructor.**

SP 400 Practical Spanish for the Public Services Professional I 3-3
Spanish for people in public services, human services, nursing, medical technology, special education, with special emphasis upon the cultural and psychological characteristics of Spanish speaking peoples.

SP 410 Practical Spanish for the Public Services Professional II 3-3
Continuation of SP 400 or Instructor's permission.

***Courses marked by an asterisk are not offered on a regular basis.**

***SP 488 Methods for Teaching Spanish in the Elementary School 3-3**
Techniques and materials for use in elementary school. **Prerequisite: Minimum of 12 semester hours beyond beginner's level and permission of Instructor.**

SP 490 Independent Study in Spanish
Open to students in the language with the permission of the supervising Instructor and the Department Chairman. Meeting times and credit by arrangement.

SPECIAL EDUCATION

CHAIRMAN: Anne May
PROFESSORS: Rosemarie Giovino, Anne May
ASSOCIATE PROFESSORS: William Brown, Katherine Flynn, Lawrence Gomes, Hattie Moreland, Donald Rapp, Michele Zide
ASSISTANT PROFESSORS: Carla Borg, Michael Fiorentino, Sandra Miller-Jacobs

The Special Education Department at Fitchburg State College is the oldest and most comprehensive state program in the Commonwealth of Massachusetts. In this program, emphasis is given to content, application and the ability to use strategies and resources in working with children with special needs.

Fitchburg State provides two major options within the Special Education curriculum. Teacher Education for Children with Special Needs (N-9) and Teacher of Young Children with Special Needs (ages 3-7) are offered.

MAJORS IN SPECIAL EDUCATION

I. Teacher of Children with Moderate Special Needs (N-9)

A performance-based program, this undergraduate major prepares students to provide direct services to handicapped children and adults. This is a combined special education and elementary sequence of study which includes concentration in the areas of mental retardation, emotional disturbance/behavioral disorders and learning disabilities.

The bachelor of Science in Special Education for the teacher of children with Moderate Special Needs must include SE 210, 220, 365, 386; PY 110, 215, 371, 275, 377; AR 280 or MU 480; MA 283 and ED 386; and four electives in Special Education which are chosen from courses SE 230 through SE 490. All Special Education courses must be taken at Fitchburg State College. All requirements are subject to change to the extent required by state regulations governing certification of educational personnel.

II. Teacher of Young Children with Special Needs (ages 3-7)

The Department of Special Education and the Early Children component of the Education Department have combined resources to undertake a comprehensive program to prepare personnel to teach young children with handicaps.

Students are prepared with a firm foundation in early childhood growth and development concepts. Through observation and student teaching students will be exposed to assessment and methods and materials appropriate for young children with special needs. Student teaching experience is required in both a special needs classroom and in a conventional classroom setting.

The Bachelor of Science in Education for the Teacher of Young Children with Special Needs must include ED 100, 210, 211, 220, 240, 270, 310, 311, 405; SE 210, 251, 350 (section II), 390; and 12 s.h. of student teaching.

SE 200 Nature & Needs of the Young Child with Special Needs 3-3
This course focuses on the effects of handicapping conditions on the development of young children with special needs. The rationale for early intervention, the importance of the child-environment interaction and current legislation affecting young children with special needs will be discussed. Observations of programs servicing young children with special needs will be made. **Prerequisite: Early Childhood/Special Education Majors.**

SE 210 Nature and Needs 1 3-3
An introductory course in special education. This course covers legislation, etiology, classification, and problems of all areas of exceptionalities. Three required clinical observations.

SE 220 Nature and Needs II 3-3
A concentrated course that focuses specifically on the areas of mental retardation, emotional disturbances, and learning disabilities. Practicum is required for Nature and Needs II.

***Courses marked by an asterisk are not offered on a regular basis.**

SE 230 Alternative Programs in Special Education

This course is designed to prepare students with the skills necessary to function in alternative programs for persons with special needs, from birth to adulthood.

1. Students will be able to identify alternative programs serving persons with special needs on a continuum and evolving in a cascade for services from birth through adulthood.
2. Students will be able to examine the organizational structure and identify the administrative design, funding sources, staffing patterns, agency collaboration, and community outreach.
3. Students will be able to identify the medical, social psychological and habilitation program aspects and their development.
4. Students will develop a case report on one client.
5. Students will identify components for being a client advocate.
6. Students will design a practicum with an agency under the supervision of an agency professional and a college supervisor.

Prerequisite: Integrated Program, SE 240 must be taken concurrently.

SE 240 Seminar in Special Education: Alternative Secondary Education and Vocational Training Programs

A seminar and field work course that examines programs for low incidence, severely handicapped (MR, ED, and Multi-handicapped) adolescents and adults. In addition to field work teams of students will research and report on various alternative programs, and explore evaluation procedures utilized for placement and curriculum development. This course will focus on the role of the Special Educator as a member of the professional team in alternative programs. **Prerequisite: Integrated Program must take either SE 230 or SE 300.**

***SE 250 Drugs and Schooling 3-3**

A study of the history of drug use and abuse among school age children and adults. The course involves completing a research orientated learning package and implementing a learning contract designed to meet the students' personalized educational goals related to the topic of drugs and schooling. Topics discussed include preventative and treatment modalities implemented to effect young children, adolescents and adults who have concerns which involve the use of drugs.

SE 251 Identification and Diagnosis of Children with Learning Problems 3-3

Students will:

1. Analyze the learning process in terms of physiological, neurological, social and language development and demonstrate knowledge of atypical developmental patterns.
2. Select and administer evaluative measures in cognitive, perception, motor, language and academic areas and interpret the results.
3. Plan teaching processes for children with learning problems.

Prerequisite: Language and Speech Development.

SE 252 Teaching Children with Moderate Special Needs 3-3

This course covers the basic concepts and issues in assessing handicapped children and in analyzing what to teach. It provides pre-service teachers with a set of tools for observing and recording behavior of handicapped children and for measuring children's progress from day to day. The basic models of evaluation are discussed (psychoeducational—task analysis) and concepts and terminology associated with each are analyzed. The course explains the development of instructional objectives based on evaluative procedures and demonstrates various teaching and management approaches used with children with mild to moderate special needs. Finally, the course includes procedures for developing IEP's and the processes for implementation. **Prerequisites: Nature and Needs I, Nature and Needs II.**

SE 260 Affective Developmental Strategies 3-3

Students study the affective domain variables as they relate to developmental stages of psychological growth, moral development, achievement motivation, and value clarification. Strategies designed to enhance affective growth within a basic skills curriculum are discussed. Each student designs a unit of study within a basic curriculum subject area utilizing affective strategies to enhance the assessed affective needs of a given population.

SE 300 Habilitation and Rehabilitation of the Special Child 3-3

An analysis of the adaptive problems of the handicapped as they affect and effect society. **Prerequisite: Integrated Program, Consent of Instructor must take SE 240.**

SE 310 Early Learning Experiences for Exceptional Children 3-3

This course emphasizes a developmental approach to working with young children with special needs. Students will compare and contrast various screening and assessment devices used for children ages 0-6 and will be able to use developmental check-lists to plan curriculum. Various infant and preschool programs for young children with special needs will be examined. The importance of play will be discussed (Practicum).

SE 330 Current Issues in Special Education 3-3

This course is designed to assist students in Special Education to gain a broad perspective on the aspects of controversy and change which are influencing the profession. In addition, with the inclusion of diverse and, in some cases, incongruent perspectives, the course is intended to stimulate critical thinking among prospective special educators. Various current issues effecting special needs children, their parents, teachers and the continually changing field of Special Education will be researched, examined, and discussed. **Prerequisite: SE 200, 210, SE 220.**

SE 340 The Multiple-Handicapped 3-3

This course deals with theoretical issues, diagnosis, field work, and planning of instruction for children with multiple handicaps. Specialized methods of evaluation in perceptional, motor, language, and tactile functioning will be emphasized. Students will plan strategies to teach motor, perceptional, language and life skills. Students will analyze a task, define the components of the task and identify related tasks utilizing similar skills. **Prerequisites: SE 200, SE 210 and SE 220.**

SE 350 Behavior Management in the Classroom II (Section I) 3-3

This course prepares the students to implement a variety of behavior management techniques e.g., Time-Out, Contingency Contracting, and Applied Behavior Analysis. Emphasis is on the development of a positive problem-solving approach to manage academic and social behaviors. Consideration is also given to developing an awareness of the teacher's behavior and its effect on the behavior of children.

SE 350 Behavior Management in the Classroom II (Section II) 3-3

This course is designed for students seeking certification as a Teacher of Young Children with Special Needs. Emphasis is placed on setting limits and ways of recording behavioral changes. Specific behavior management techniques and strategies are examined with consideration given to both behavioral and psychodynamic strategies. Students analyze current literature on behavior management.

SE 360, SE 370 Seminar in Special Education I & II Tactile and Motor Implications in Learning 3-3

A study of the major theories of motor learning in exceptional children. Assessment procedures and teaching methods are emphasized throughout. Students will actively participate in developing and demonstrating activities. **Prerequisites: SE 200, 210, and SE 220.**

Spring: Visual Implications in Learning

An introduction to visual impairment in children and youth. Etiology, early identification, methods and materials, and modes of communication (Braille, large print, low vision aids and new technology) will be stressed. Community and state resources will be incorporated. **Prerequisite: SE 200, SE 210, and SE 220.**

SE 365 Integrated Professional Program 15

The Department of Special Education at Fitchburg State College offers the Integrated Professional Program as a unique aspect of the teacher preparation model. The underlying assumption is that more meaningful preparation of teachers occurs when college students and faculty are located in the educational settings in the community and are exposed to realistic learning experiences. The Department has moved this aspect of the preparation model from the college to elementary schools in the community into one fifteen (15) credit block. The Program includes theoretical instruction and practical application in the following areas:

A. Integrated Program
   1. Curriculum and Methodology
      Math
      Science
      Social Studies/Career Education
      Reading
      Language Arts
   2. Identification and Diagnosis of Learning Problems
   3. Behavior Management

B. Student Teaching Level I

The college student spends three weeks, 6 hours a day, in an orientation program on campus for course content; 6 weeks 3-4 hours per day on site at an elementary school for prepracticum experiences, and 7 weeks at the same elementary school in an elementary teaching experience on a full-day basis.

Prerequisites: **PY110 General Psychology**
PY221 Child Psychology
PY371 Learning Theory
SE210 Nature and Needs I
SE220 Nature and Needs II
SE252 Teacher of Children with Moderate Special Needs
MS283 Methods and Materials in Elementary Mathematics
PY275 Tests and Measurements
AR280 Art in the Elementary
MU480 Music in the Elementary

Eligibility

Students must have a 2.5 cumulative average in Special Education and prerequisite courses.

SE 380 Secondary Programs for Adolescents (14-22) with Special Needs 3-3

The college student will attend lectures, complete readings, and participate in discussions related to academic programming for adolescents between the ages of 14 to 22 in a variety of educational settings. Each student will complete a ten-hour supervised academic skill-related practicum in an educational facility.

SE 386 Student Teaching 12 SH

One of the significant aspects of the curriculum is student teaching. All students are assigned to two student teaching stations, each eight weeks in length, and at either the elementary or the secondary level as appropriate. One station is in a "Special Needs" room. The other is a regular classroom that is not a special needs room. The cooperating teachers selected for this program have been carefully screened in respect to certification requirements, their ability as teachers, and their identification with the program. Each student assumes complete classroom responsibility in each station guided by the cooperating teacher and the college supervisor. Students receive certification as elementary teachers with approval as special education teachers.

SE 390 Language Development and Speech 3-3

In this course students will:
(a) Explain normal development of auditory receptive language and auditory expressive language from birth to 7 years;
(b) Analyze linguistic development, phonology, morphology, and syntax;
(c) Compare and contrast various theories of language acquisition;
(d) Select and administer instruments to diagnose receptive and expressive deficits, interpret the results, and plan teaching strategies.

Prerequisite: ECH/Sp. Ed. majors, others by consent of Instructor.

SE 400 Program Development for Children with Learning Problems 3-3

In this course students will:
(a) Explain models of language behavior and determine dysfunctioning in factors associated with language development;
(b) Critically evaluate the research and literature relating to the development of linguistic and perceptual-motor performance;
(c) Interpret, compare, and contrast the theories regarding diagnosis and treatment of learning disorders;
(d) Select and administer evaluative measures in the cognitive, perceptual and psychomotor domains;
(e) Plan and write education programs for individual children with moderate to severe handicaps based on assessment data;
(f) Make application of the principles of diagnosis and remediation and the theoretical formulations having relevance for learning disorders in situations dealing with children in the public schools.

Prerequisite: The Integrated Professional Program (Fusion)

SE 405 Issues in Mainstreaming 3-3
Course is designed for Early Childhood and Elementary education majors as a post student-teaching elective. The issues will be applied to the public school system as they relate to the special needs child. Topics will include litigation, Chapter 766, mainstreaming, teacher expectations, accountability, the educational plan, reporting procedures, peer tutoring, human resources, and program models.

SE 410 Severely and Profoundly Handicapped 3-3
This course will define the severely handicapped population, emphasizing their characteristics and needs. The course offers an opportunity, through course work and a weekly practicum, for students to interact with a severely handicapped individual and develop an assessment, educational plan, and instructional program for that individual. In addition, the course will outline strategies and techniques for changing behavior of children functioning at this level, and will offer suggestions for meeting the needs of these individuals in the total school program. An overview of services now available for the severely handicapped will also be provided. **Prerequisite: SE 200, 210 and SE 220.**

***SE 460 Problems in Language Arts for Special Education 3-3**
Students identify, develop, use resources related to classroom problems in language areas. Stages of development and deviations of exceptional children are emphasized.

SE 468 Group Process and Counseling of Children with Mild to Moderate Special Needs 3-3
Goals of individual adjustment of exceptional children, evaluation of techniques for gathering and utilizing information, and principles and techniques of using such material in counseling children.

SE 469 Community Resources for the Exceptional Child 3-3
Identification of agencies, practices, and personnel, development of models, simulation of roles, and production of a guide.

SE 496, 490 Independent Study 3 SH
Review, development, and synthesizing of a problem in special education. Open to juniors and seniors with permission of Instructor.

SPEECH

ASSISTANT PROFESSORS: Eugene Casassa, Robert Welch

***SH 01 Speech Improvement 1-1**
Remedial course. Students are assigned after diagnosis and recommendations of need for speech improvement. Individual and group therapy.

SH 100 Introduction to Speech Communication 3-3
An introduction to the theory and practice of interpersonal and public communication. Topics include: communication theory, self-concept, perception, language, listening, nonverbal communication, and public speaking.
Meets General Education speech requirement.

***SH 110 Argumentation and Debate 3-3**
Projects in argumentation and debate with emphasis on analysis, research, evidence, strategies, briefing, refutation, and the delivery of debates on representative questions.

***SH 120 Business and Career Communication 3-3**
Application of theory and methods of communication to business and career problems. Emphasis is placed on skills especially important to students planning on working for and/or within an organization, such as resume writing, interviewing, and group conference techniques.
Meets General Education requirement for Speech.

SH 130 Effective Speaking for the Electronic Media 3-3
This course will introduce the student to a variety of speaking experiences encountered by those who plan to use the electronic media as part of the performance of an occupation. The course should interest students who anticipate speaking roles in industry-made audio and video productions as well as those who aspire to careers as professional broadcasters. The course will include such assignments as the oral delivery of news items and public service announcements. Major attention will be given to the presentation of narratives coordinated with audio and visual aids. Meets general education speech requirements for those majoring in Communications/Media.

***SH 140 Discussion and Conference Techniques 3-3**
The fundamentals of group discussion in private and public settings. Emphasis is placed on group structure, leadership, interpersonal relationships, and includes extensive practice in varied group situations.
Meets General Education requirement for Speech.

SH 160 Public Speaking 3-3
A course of value for all students regardless of major. Especially useful to students with an interest in public affairs and a desire to influence the decisions of others. Course concentrates on the development of skills and assurance in public speaking through the preparation and presentation of specific forms of public address. Emphasis is given to audience analysis and rhetorical strategies.
Meets General Education requirement for Speech.

***SH 180 Prison Communication 3-3**
The study and application of interpersonal communication within the penal system. Special emphasis is placed on role playing techniques to help students gain a greater understanding of prisoner-volunteer-guard-administrator relationships and how each functions within the system. Recommended for those interested in a corrections related career.
Meets General Education requirement for Speech only with permission from the Instructor and student's advisor.

SH 210 Intercollegiate Debate and Forensics 1-1
Opportunities for study and participation in debate and forensic speaking activities.

***SH 240 Voice and Articulation**
Examination of the elements of vocal production and presentation. Special emphasis on the study of and application of phonetic theory. Designed for the student desiring improved voice and articulation quality, accuracy, and clarity.
Meets General Education requirement for Speech.

SH 260 Persuasion 3-3
A study of the causes of listener belief and action with special emphasis given to the development of strategies to influence listener behavior. Students have the opportunity to devise persuasive campaigns on subjects of their choosing.

SH 261 Basic Speech for the Industrial Arts 3-3
Application of methods of communication for the industrial arts. Special emphasis is placed on the basics of articulation and the presentation of technical language and concepts in simplified terms. Idea organization, language use, and delivery techniques are included through extensive practice.
Meets General Education requirement for Speech only with Instructor's approval and permission from student's advisor.

***SH 270 Voice and Articulation for the Classroom Teacher 3-3**
Examination of children's speech and basic articulatory problems that may arise. Emphasis is placed on common speech problems encountered in the classroom and activities to use for these problems.
Recommended for Elementary and Special Education majors.

***SH 280 Rhetorical Criticism 3-3**
Exploration of approaches to the rhetorical criticism of significant speeches and speech movements, past and present. Includes rhetorical, literary, historical, linguistic, and quantitative methods of criticism.

***SH 420 Children's Theatre 3-3**
An introductory course in theatre for children, its principles and practices. Covers aspects of play production for juvenile audiences: script selection and evaluation, directing, acting, and staging techniques.

SH 430 Mime and Movement in Theatre 3-3
A workshop-oriented course utilizing the basic techniques of theatrical mime and movement with emphasis on developing each student's potential for effective physicalization on the stage.

SH 490 Independent Study 3-3

***Courses marked by an asterisk are not offered on a regular basis.**

COLLEGE DIRECTORY

BUILDINGS AND GROUNDS

The 90-acre campus includes academic buildings, an administration complex, three residence halls, an apartment residence complex, the library/campus center, an auditorium/theater, a dining commons, and gymnasium. A short distance north of the campus is a 36-acre athletic and recreational area and the McKay Campus School, a cooperative laboratory facility involving college education students and elementary children. The Biology Department maintains a 75-acre field station on the property of the 4-H Camp Middlesex in Ashby.

Anthony Building, 1936, was named for Willis B. Anthony, Director of the Industrial Arts Department, during the period 1909-1947 and serves as a warehouse and supply distribution center and the office of the Athletic Director.

Aubuchon Hall, 1966, was named for William E. Aubuchon, Jr., Trustee of the Massachusetts State College System, 1965-1974, and is a residence hall for 380 students.

Campus Police Headquarters, 1978, is located on the west side of the Campus Quadrangle and also houses the office of the Superintendent of Grounds and the power plant.

Condike Science Building, 1963, named for Dr. George F. Condike, professor of Chemistry 1947-present and Academic Dean 1954-1956, it houses the offices of the Vice President for Academic Affairs and the Dean of Undergraduate Studies and the following academic departments: Biology, Chemistry and Medical Technology

Conlon Building, 1976, named for Florence Conlon, professor, 1920-1961, it houses the offices of the Humanities Department, including the Art, Music and Philosophy facilities, the Industrial Arts Department, the Image Systems Department, the photography laboratories and the television studio.

Edgerly Hall, 1900, named for Joseph G. Edgerly, Superintendent of Schools in Fitchburg, 1875 to 1914, it contains the offices of Career Planning and Placement, the Geography Department, the Veterans Administration representative and offices and classrooms for Army ROTC, and the Advising Center.

Hammond Building, 1975, was named for James J. Hammond, Instructor and Commonwealth Professor, 1937-1962; President, 1963-1976; Chancellor of the Massachusetts State College System, 1976-present. The Hammond Building contains the Campus Center, Library, Data Processing Center, Learning Resource Center, the Massachusetts Film and Media Service Cooperative, and the A.I.D. office.

Herlihy Hall, 1957, named for Charles M. Herlihy, Principal, 1927-1932 and President, 1932-1944, it is a coed residence hall and houses 142 students.

Holmes Dining Commons, 1973, was named after Roger Franklin Holmes, Professor of history from 1928 to 1969.

McKay Campus School, 1971, was named for Edith McKay who in 1950 donated ten acres of land to the City of Fitchburg. Besides being a campus laboratory school, the McKay Campus School contains the offices of the Departments of Foreign Languages, Early Childhood, Elementary, Secondary, and Special Education, the Center for the Study and Research in Human Development, the Physics, Computer Science and the Business Administration Departments.

Miller Hall, 1903, was named for Joel D. Miller, a Massachusetts State Senator, 1894-1897 and member of the State Board of Education, 1895-1909, it contains the English, Speech, Mathematics and Social Science Departments, the college Health Center, and The Fitchburg State College Education Association.

Newman Center, 281 Highland Avenue, owned by the Worcester Roman Catholic Diocese, is the Center for the Newman Association and includes an ecumenical chapel, a lounge for studying and socializing, a kitchen and recreation room for all students.

Parkinson Gymnasium, 1957, was named for William D. Parkinson, principal from 1920 to 1927, contains offices and classrooms of the Physical Education Department.

Percival Hall, 1909, was named for Harry F. Percival, professor, 1931-1953, it houses the Behavioral Science Department, including the Psychology, Sociology and Human Services offices.

Russell Towers, 1971, was named for Dean Helen Ross Russell, Professor 1949-1966. It is a coed residence hall for 405 students.

Sanders Administration Building, 1963, named for William J. Sanders, President 1945-1950, contains the offices of the President and his support staff, including the Vice Presidents for Administration and Student Services, the colleges business offices, Registrar, Admissions and Financial Aid Offices.

Thompson Hall, 1895, named for John G. Thompson, principal 1895 to 1920, it houses the offices of the Dean of Graduate and Continuing Education, Director of Field Services, the Nursing Department, and the Communications Media Department.

Town House Complex, 1978, is a 7-building complex, which provides apartment style units for groups of 5, 6, or 7, with a separate bedroom for each member of the group. The apartment buildings are coed, but the sub units in the building are not. The complex has two apartments, designed for the handicapped.

PARKING REGULATIONS

Parking facilities at Fitchburg State College are limited, but are being gradually expanded.

Commuting students are required to obtain identification stickers if they wish to park in student lots on campus.

There are no parking areas assigned to resident students. Junior and senior residents whose curricula require travel to nursing and teaching assignments should confer with the Dean of Students Office.

More specific information is contained in the booklet entitled "Motor Vehicle Regulations."

ANIMALS ON CAMPUS

Due to health and safety considerations, no animals can be allowed on campus or in campus buildings at any time. Obvious exceptions would be seeing-eye dogs and laboratory animals.

MASSACHUSETTS TRESPASS ACT

Fitchburg State College is governed by the Massachusetts Trespass Act, enacted June 2, 1969.

TRESPASSING UPON THE LAND OF CERTAIN INSTITUTIONS

Whoever willfully trespasses upon land or premises belonging to the Commonwealth, or to any authority established by the general court for purposes incidental to higher education . . . . after notice from an officer of any of said institutions to leave said land, remains thereon, shall be punished by a fine or not more than $50 or by imprisonment for not more than three months.

CORRESPONDENCE AND VISITS

The post office and telegraph address of the College is:

Fitchburg State College
160 Pearl Street
Fitchburg, Ma., 01420

The telephone number of the College is: (617) 345-2151.

The following administrators have information on subject matters listed below:

The President:
General interests of the College.

The Vice President for Academic Affairs:
Academic services, faculty and academic professional staff.

The Undergraduate Dean:
Curriculum, academic work of students.

The Registrar:
Academic records, transcripts.

The Vice President for Student Services:
Financial Aid, scholarships, remunerative work, housing, athletic programs, career planning and placement.

Director of Admissions:
Admission to the freshman class and transfer from another college.

Bursar:
Payment of bills and business matters.

CLASS CANCELLATIONS

In the event of inclement weather the cancellation of classes will be reported on WBZ, WEIM, WFGL, WTAG, WGAW, WEEI and WLMS radio stations.

ADMINISTRATION

OFFICE OF THE PRESIDENT

VINCENT J. MARA, President
B.S.Ed., Ed.M., Worcester State College; Ph.D., University of Connecticut. 1976

PATRICK F. DELANEY, JR., Vice President, Academic Affairs
A.B., Providence College; A.M.I., Ph.D., Brown University. 1979

WILLIAM R. DONOHUE, Vice President, Student Affairs
B.A., University of Northern Iowa; M.A., Ph.D., Michigan State University. 1978

JOHN J. BOURSY, Vice President, Administration and Finance
B.S., Holy Cross College; M.B.A., Clark University. 1964

TERRANCE CARROLL, Staff Associate
A.B., Northeastern University; M.Ed., Fitchburg State College. 1974

THOMAS COATES, Director, Personnel Relations
B.A., Western Michigan College; J.D., New England College of Law. 1974

DANIEL S. FLYNN, Assistant to the President
A.A., Worcester Junior College; A.B., Assumption College. 1978

FRANCIS X. GUINDON, Director, Planning and Development
A.B., Notre Dame University; M.Ed., Bridgewater State College; Ed.D., Harvard University. 1970

ROY HALL, III, Director, Computer Services
B.S., Framingham State College. 1977

BRUCE HARRELSON, Staff Assistant
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